RAD
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User's Manual

5620 Model Descriptor for LA-110

5620 Model Descriptor for LA-110

Version 2.0

User's Manual

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For further information contact RAD at the address below or contact your local distributor.

International Headquarters
RAD Data Communications Ltd.

24 Raoul Wallenberg St.
Tel Aviv 69719 Israel
Tel: 972-3-6458181
Fax: 972-3-6498250
E-mail: market@rad.com

U.S. Headquarters
RAD Data Communications Inc.

900 Corporate Drive
Mahwah, NJ 07430 USA
Tel: (201) 529-1100, Toll free: 1-800-444-7234
Fax: (201) 529-5777
E-mail: market@radusa.com

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Contents

Chapter 1. Introduction

1.1 5620 SNMP Descriptor Module 1-1
1.2 LA-110 Product Overview 1-2
1.3 5620 Network Management Architecture 1-2

Chapter 2. Getting Started

2.1 Hardware Requirements 2-1
2.2 Installation and Setup 2-1
5620 SNMP Descriptor Module File Installation 2-1
Creating an LA-110 Node on the 5620 Network Map 2-4
Deleting an LA-110 Node from the 5620 Network Manager Map 2-7
Displaying LA-110 Ports 2-7
2.3 Using the Graphical User Interface 2-8
Alarm and Test Indication 2-9
Drawing Tool 2-10
Navigator Tool 2-11
Configuration Tool 2-12
Monitor Tool 2-12
Rediscover Tool 2-12
Status Bar 2-12

Chapter 3. System Configuration and Monitoring

3.1 Selecting the System 3-1
3.2 Viewing and Modifying System Information 3-3
3.3 Viewing and Modifying System Parameters 3-5
3.4 Viewing and Modifying Host Interface Parameters 3-6
3.5 Viewing and Modifying Traffic Descriptor Settings 3-8
3.6 Viewing and Modifying the Manager List 3-11
3.7 Selecting AAL1 3-15
3.8 Viewing ATM to FR IWF Settings 3-16
3.9 Viewing and Modifying SNMP Community 3-18
3.10 Viewing and Modifying Descriptor Settings 3-19
3.11 Viewing and Modifying LA-110 Preferences 3-20
Viewing and Modifying System Preferences 3-20
3.12 Managing System Faults 3-21
Viewing Active Alarms 3-21
Viewing Alarm History in the System Log Buffer 3-22
Clearing the History Log 3-24
3.13 Resetting System Configuration 3-25
Restoring the Default Configuration 3-25
Resetting the System 3-25
Resetting All Statistics 3-26
Viewing Online Help 3-26

Chapter 4. Port Configuration and Monitoring

4.1 Selecting Ports 4-1
4.2 Performing Port Operations 4-3
4.3 Viewing Port Parameters 4-3
4.4 Configuring Ports 4-4
4.5 Data Port Configuration 4-5
Data Port Application 4-5
Data FR Application Mode 4-6
AAL1 Stream Application Mode 4-13
4.6 LAN Port Configuration 4-19
Interface Parameters 4-19
Port Application 4-21
Interface Information 4-22
Bridge Configuration 4-23
Bridge Port Configuration 4-33
4.7 SHDSL Port Configuration 4-35
SHDSL Port - Physical Layer 4-36
SHDSL Port - ATM Layer 4-42
4.8 CES E1 Port Configuration 4-48
Parameters 4-49
Interface Information 4-51
Bundles Configuration 4-52
Bundles Table 4-54
Loopback Testing 4-55
4.9 Performance Monitoring 4-56
4.10 Data Port Monitoring 4-57
Viewing FR Interface Statistics 4-57
Viewing AAL1 Stream Interface Statistics 4-58
4.11 LAN Port Monitoring 4-59
Viewing LAN Interface Statistics 4-60
4.12 SHDSL Port Monitoring 4-62
Viewing SHDSL Physical Layer Statistics 4-62
Viewing SHDSL ATM Layer Statistics 4-68
Viewing SHDSL AAL1 statistics 4-74
Viewing SHDSL AAL5 statistics 4-77
4.13 CES E1 Port Monitoring 4-81
Current Data Statistics 4-81
Intervals Data Statistics 4-83

Chapter 5. Cross Connection

5.1 Adding Cross Connections 5-1
LAN VC Connection 5-1
CES VC Connection 5-2
FR VC Connection 5-5
AAL1 Stream VC Connection 5-6
5.2 Configuring Cross Connections 5-8
LAN VC Connections 5-8
CES VC Connections 5-13
FR VC Connections 5-20
AAL1 Stream VC Connections 5-24

5.3 Performance Monitoring 5-28
Viewing VC Connection OAM Loopback Statistics 5-29
5.4 Deleting Cross Connections 5-30

Chapter 6. Path Management

6.1 Configuring and Monitoring Links and Paths 6-1
Configuring SHDSL Links 6-1
6.2 Configuring and Monitoring ATM VCC Paths 6-6
LAN to LAN Paths 6-6
6.3 Viewing and Modifying CES Path Parameters 6-12
6.4 CES to CES Paths 6-15
6.5 Viewing Link Information 6-20
Viewing List of Links and Paths 6-20
6.6 Deleting Paths and Links 6-21
6.7 Configuring Data FR and AAL1 Stream Paths 6-23
Configuring Data FR Paths 6-23

Appendix A. LA-110 MD LED Indicators

Chapter 1
Introduction

This chapter provides a general overview of RAD Data Communications LA-110 dedicated ATM IAD Model Descriptors (ATM IAD MD), hosted by the 5620 SNMP Descriptor Module. The 5620 SNMP Descriptor Module is invoked from the 5620 Network Manager and is used to monitor and configure SNMP nodes.

1.1 5620 SNMP Descriptor Module

The 5620 SNMP Descriptor Module provides remote configuration and monitoring of SNMP nodes for LA-110, through a point-and-click graphical user interface. The 5620 SNMP Descriptor Module uses descriptors to represent transmission equipment units. The 5620 SNMP Descriptor Module application includes interfaces to manage Alcatel and third party nodes.

The LA-110 model descriptors are a collection of equipment descriptors for LA-110 (see *Figure 1-1*).

Equipment descriptors represent the functionality of a device, its slots and its ports. The model descriptors provide element management capabilities within the limits of the MIB objects that the device supports. In addition, the LA-110 model descriptors will perform all parameter validation and any applicable data range/limit checks.

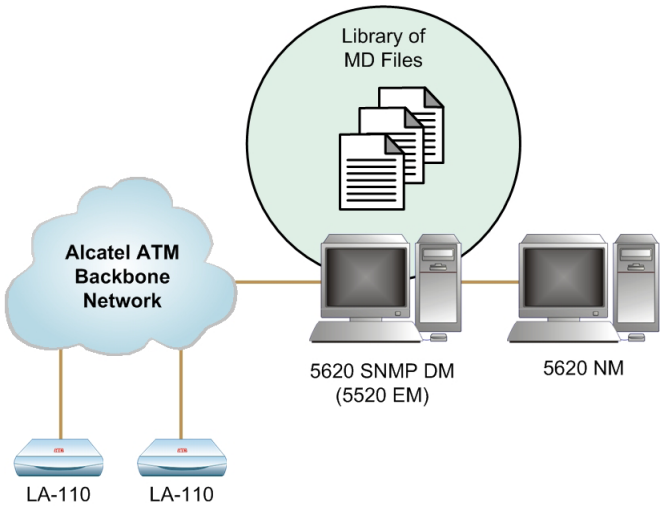


Figure 1-1. Network Management with 5620 SNMP Descriptor Module and 5620 Network Manager

1.2 LA-110 Product Overview

LA-110 is an advanced ATM Integrated Access Device (IAD) that provides voice, data and LAN services over ATM networks for small and medium-sized businesses.

The services supported by LA-110 include:

- High-quality leased lines for analog voice or data
- High-speed data (serial and Frame Relay)
- Ethernet with MAC bridge for LAN-to-LAN or Internet access.

This wide range of services provides maximum flexibility for service integration, ease of use and scalability. Moreover, LA-110 uses cost-effective SHDSL lines for connection to the ATM network, offering long range over widely available twisted wire pairs.

1.3 5620 Network Management Architecture

The 5620 Network Management System consists of three management layers, from bottom to top in the hierarchy:

1. Element management layer
2. Network management layer
3. Service management layer.

The Alcatel 5620 NMS open architecture facilitates the integration of multi-vendor devices management. Employing Model Descriptors (MDs), it can manage SNMP and TL1 third-party elements. The MD interprets SNMP messages between the managed devices and the 5620 Descriptors Module (formerly 5520 SNMP Element Manager). Using a descriptor, the service provider can manage provisioning of new nodes or modify and support existing ones.

The Alcatel system allows the network administrator to maintain multiple MD. Management capabilities are easily extended for new node types by simply adding relevant MD to the ensemble. A dedicated descriptors ensemble for each node type is required (see *Figure 1-2*).

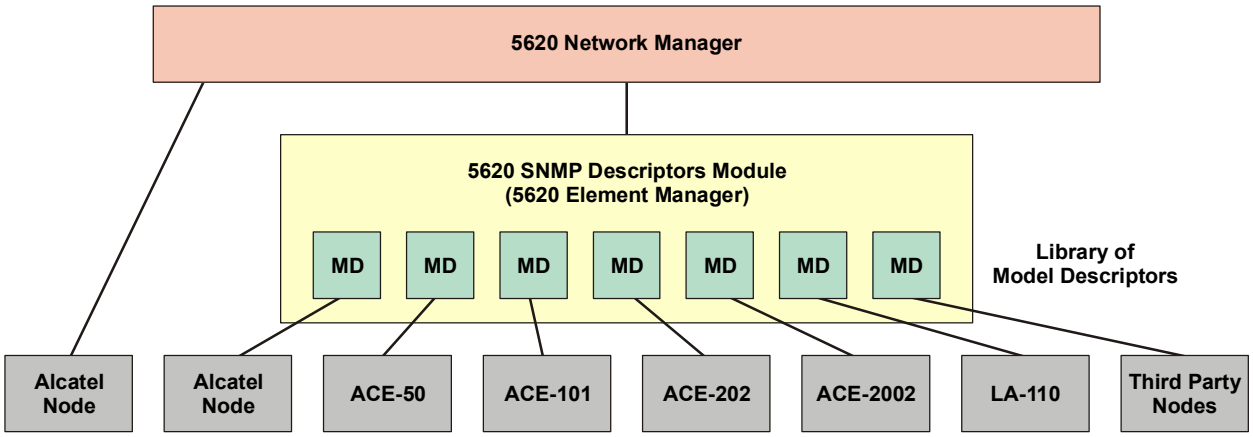


Figure 1-2. System Architecture

For further information about the 5620 Network Manager, refer to the Alcatel 5620 NM manual.

Chapter 2

Getting Started

This chapter explains the first steps required to get the RAD LA-110 Model Descriptor SNMP management system up and running. It describes how to install LA-110 Model Descriptor, its basic features, functionality, and concepts of the graphical user interface. It also provides instructions how to create LA-110 nodes on the Network map. (For the specific tasks possible with LA-110 Model Descriptor, please refer to the subsequent chapters.)

This chapter covers the following tasks:

- Preliminary hardware configuration of LA-110
- Installing LA-110 MD
- Launching LA-110 MD
- Using the LA-110 MD main window.

2.1 Hardware Requirements

The minimum hardware requirements for the 5620 SNMP DM and the 5620 Network Manager are according to Alcatel installation guides. Please refer to these prior to installation.

2.2 Installation and Setup

This section provides the installation instructions for the 5620 SNMP DM. Once the descriptor is installed, an LA-110 node should be created.

5620 SNMP Descriptor Module File Installation

This section explains how to install the 5620 SNMP DM file in a 5620 Network Manager unit.

Note *Before starting, note that* ***Upgrade from R1 to R2 requires*** *that* ***ALL*** *LA-110 Nodes* ***must be recreated****.*

➤ **To install the LA-110-5620 SNMP DM Equipment Descriptor:**

1. Log in as user **root**.
2. Insert the RAD Model Descriptor CD-ROM into the CD-ROM drive.

3. Type: **`cd /cdrom/cdrom0`**
4. Type: **`pkgadd -d ./`**
5. Press **Enter** to continue with the package installation.
6. Log out and log in as your user.
7. In the 5620 Network Manager Map, select the **5520 SNMP DM** icon (model descriptor installer), right-click and select **Communication Session > Active**.

   The Model Descriptor Installer dialog box opens.

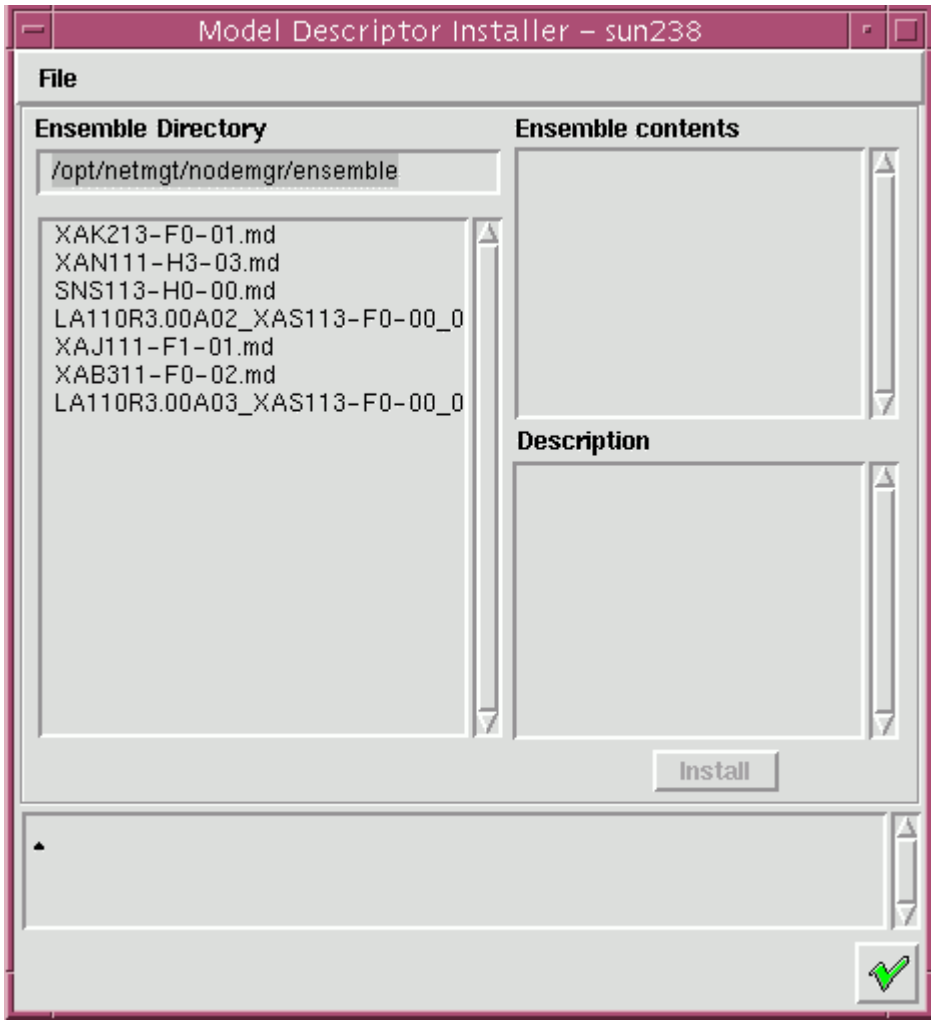


Figure 2-1. Model Descriptor Installer

8. In the **Ensemble Files** pane, verify that the path is: **/opt/netmgt/nodemgr/ensemble**.
9. In the Ensemble Contents pane, select an Ensemble (**md file**).

   The equipment description appears in the Description pane. The version number and release date of the Model Descriptor is shown in this window.

Note *If you select an item in the Installed Model Descriptors pane, the Version Number and release date of the currently installed 5620 SNMP Descriptor Model appears in the description pane.*

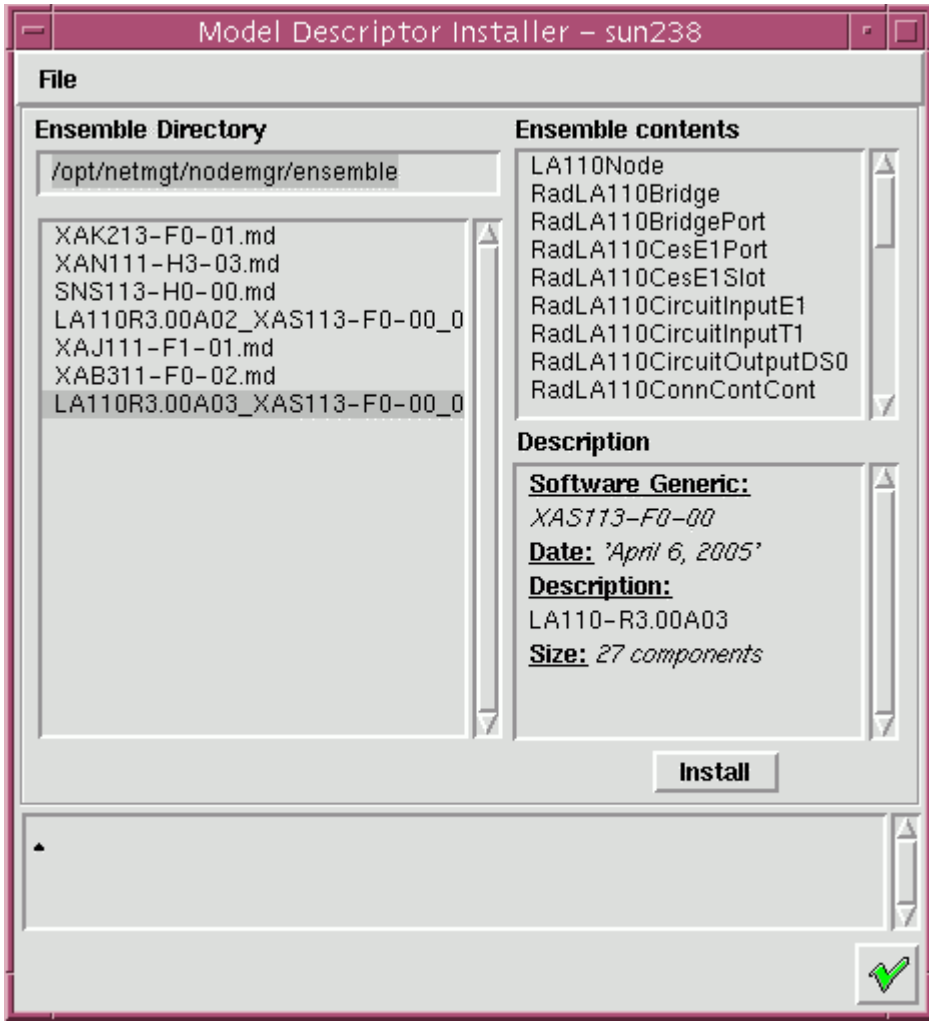


Figure 2-2. LA-110 Ensemble Description

10. Click <**Install**>.

    The equipment descriptor files are installed. The status bar at the bottom of the window indicates the progress. Verify that the installation is successful. Verify that all 5620 SNMP DM windows are closed and that the 5520 SNMP DM master is restarted (5520 SNMP DM node in 5620 Network Manager turns red and then eventually reverts to gray).

    A few minutes after the installation is completed, the 5620 SNMP DM restarts.

    For instructions for logging in to the 5620 map, refer to the Alcatel User's Manual.

    (To login: In the relevant fields in the Login page, type in your user name and password.)

Note *When the LA-110 Node Draw is already opened, no Login is required.*

11. To begin working, double-click the **Entire Network** Icon to open the 5620 DM Network map.

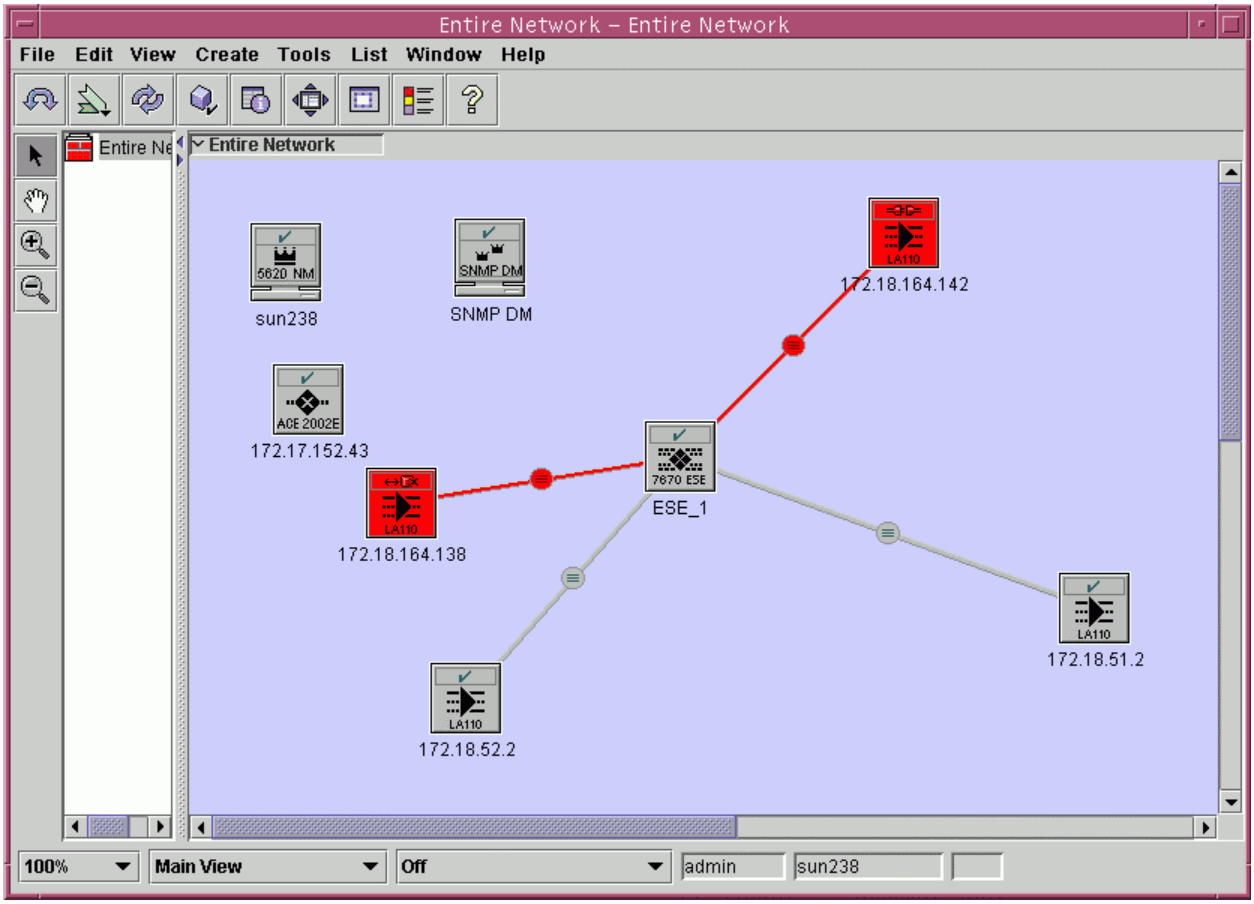


Figure 2-3. Entire Network Map

You are now able to perform configuration and monitoring functions in the *entire network* per your assigned privileges.

Begin by creating an LA-110 node icon on the 5620 Network map.

Creating an LA-110 Node on the 5620 Network Map

➤ **To create an LA-110 node on the 5620 Network Map:**

1. Verify that the unit is connected to the network IP address.
2. In the 5620 Network Map, right-click and select **Create > Equipment > Node** from the shortcut menu.

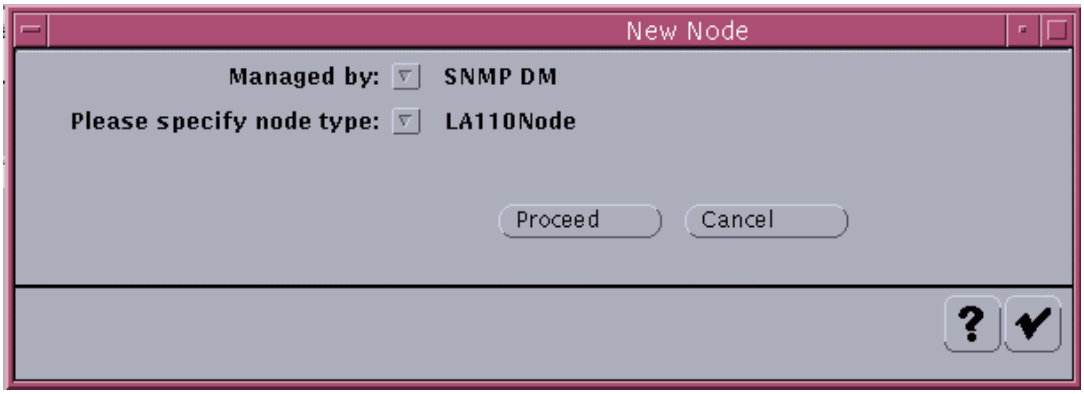


Figure 2-4. New Node Dialog Box

3. As shown in Figure 2-4, in the **Managed by** field, click the drop-down arrow and select **SNMP DM.**
4. As shown in Figure 2-4, *i*n the **Please Specify Node type** field, click the drop-down arrow and select the node type (i.e. **LA110Node**).
5. Click <**Proceed**>.

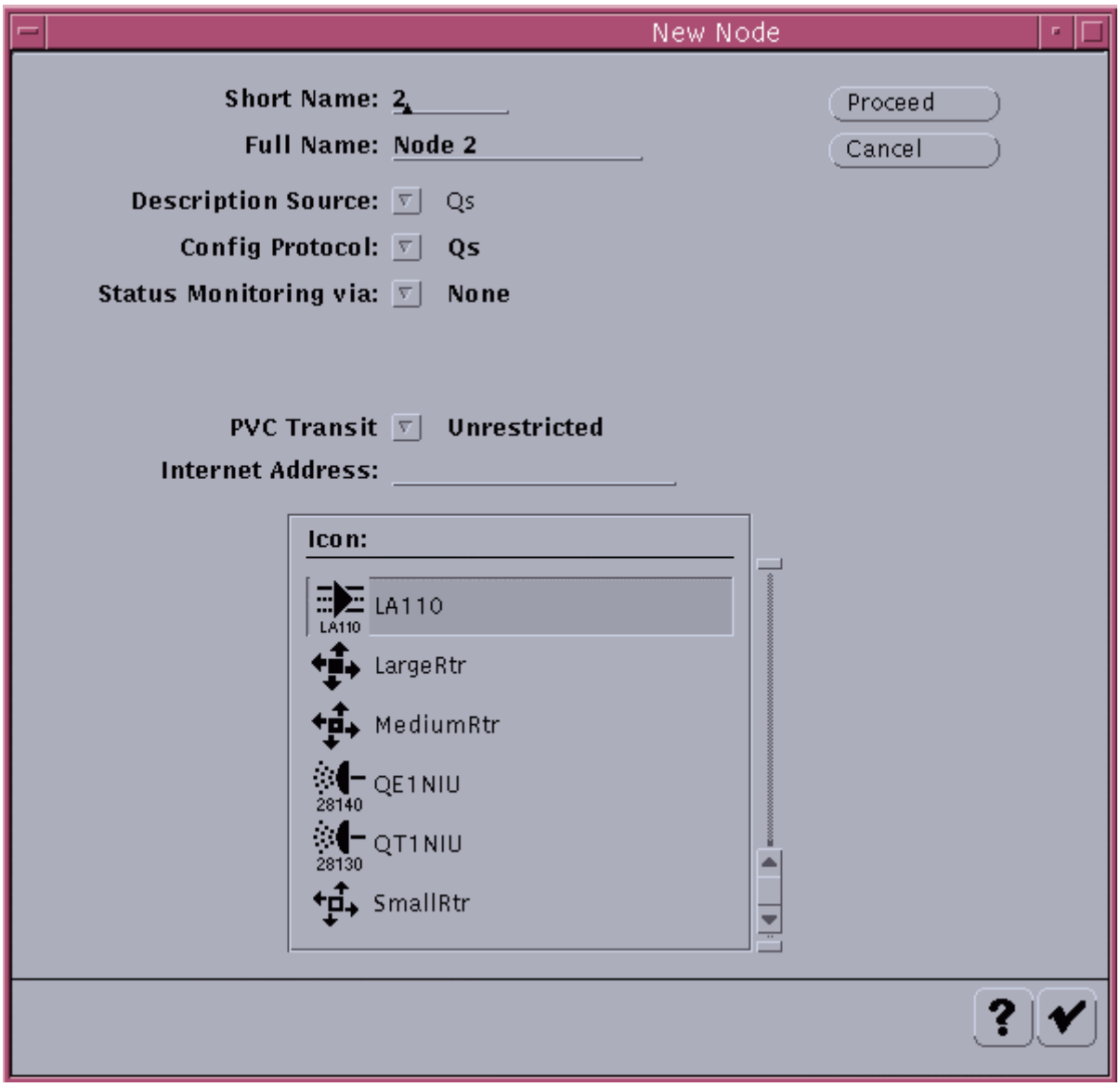


Figure 2-5. (Another) New Node Dialog Box

Table 2-1. New Node Parameters

Parameters	Possible Values / Remarks
Short Name	Short name of the new node **String in letters and/or digits.**
Full name	Full name of the new node. String in letters and/or digits
Description Source	The description source. **Qs** Read-only
Config Protocol	The configuration protocol. **Qs, NCI**
Status Monitoring via	The status monitoring source. **None, IP, SNMP**
PVC Transit	Determines whether PVC transit is restricted for the node. **Unrestricted, Restricted**
Internet Address	Interent (IP) address of the node.

6. In the **Short Name** and **Long Name** fields, type in the relevant names.
7. Leave the rest of the fields at their default values. (Optional) In the Icon field, you can select the LA-110 icons. If desired, you can select any other icons.
8. Click <**Proceed**>.

   A warning box opens, prompting you about the creation of the new node, click <**Continue**> to proceed.

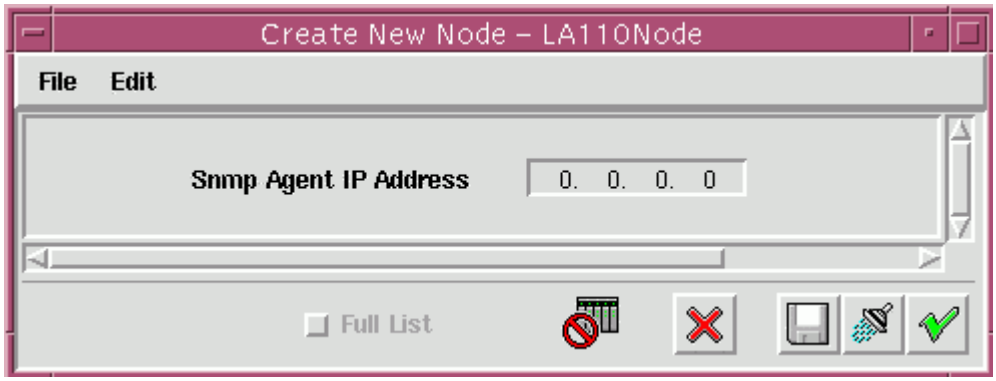


Figure 2-6. Create New Node Dialog Box

9. In the **SNMP Agent IP Address** field, type in the **IP address** of the LA-110 node, and click <**Save>**.

   The SNMP Read and Write Community String dialog boxes open.
10. Enter the relevant SNMP read/write community strings and click **<OK>**.

    After several seconds, an LA-110 icon appears on the 5620 SNMP DM Network Map.

This icon is yellow at first, indicating that the 5620 SNMP DM and the 5620 Network Manager are retrieving information from the LA-110 agent. When this process ends, the icon turns gray.

Note *When the LA-110 device configuration changes (for example, if the same IP Address is assigned to another LA-110 with another configuration), the corresponding node must be recreated.*

Deleting an LA-110 Node from the 5620 Network Manager Map

➤ **To delete an LA-110 node from the 5620 Network Map:**

1. On the 5620 Network Map, select an **LA-110 Descriptor** node, right-click and select **Delete.**
2. Click **OK**.

   The LA-110 node is deleted from the Entire Network map.

Note *The delete operation fails if the node is associated with a 5620 link or path.*

Displaying LA-110 Ports

You can zoom in on an LA-110 node icon on the 5620 Network map to display its ports.

➤ **To display LA-110 ports:**

1. On the 5620 Network map, double-click on an **LA-110 Node** icon.

   or

   Right-click on an **LA-110 Node** icon and select **Open Object**.

Figure 2-7. LA-110 Ports in 5620 Network Manager (Shelf View)

Clicking on a port displays a port window. (Each Container can be identified per label. The round circle in the bottom of the container shows the status of the port. The status options are Gray (No Fault) or Red (faulty), and on the port level, Purple upon Loopback test.

To display a port level window, double-click on a **port**.

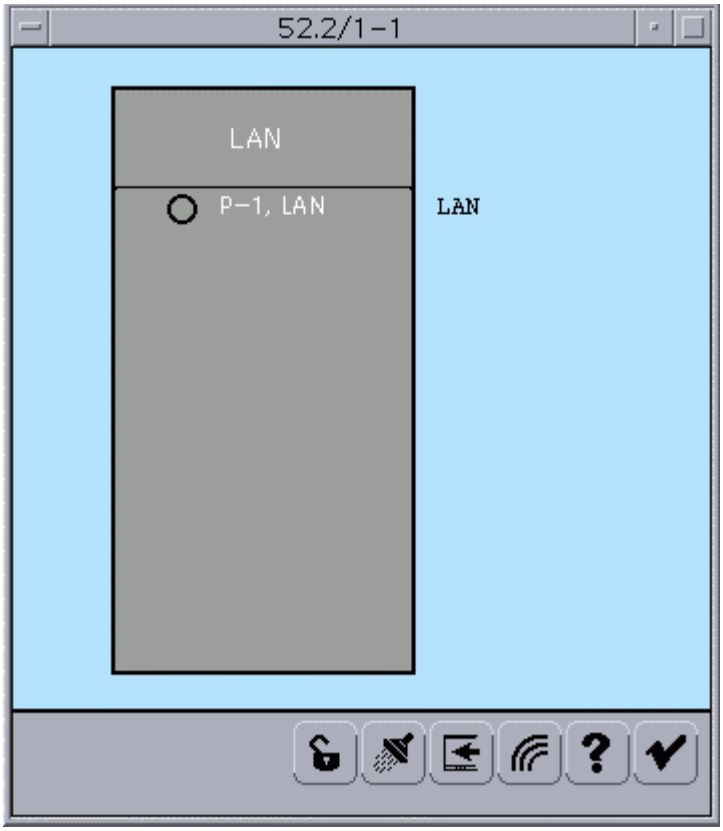


Figure 2-8. LAN Port Zoom View

Now that you have created an LA-110 node icon, you are ready to begin performing configuration and monitoring operations on the LA-110 system.

2.3 Using the Graphical User Interface

The 5620 SNMP DM is a versatile product that allows you to remotely configure and monitor third party SNMP nodes like LA-110, through an easy-to-use, point-and-click GUI.

The 5620 SNMP DM consists of a base set of applications that provide the ability to remotely draw, configure, navigate, monitor, and set SNMP preferences for SNMP nodes using model descriptors designed for each node. (Refer to the relevant sections below for detailed descriptions and illustrations.)

The basic 5620 SNMP DM tools utilized by LA-110 MD include:

- **Drawing** tool, which displays an image of LA-110, the interface components and the status indications of each interface.

- **Navigator** tool, in which the model descriptors provide the capability of listing the managed objects of LA-110.
- **Configuration** tool, which provides appropriate tabular or scalar forms to configure node, slot and interface control attributes in LA-110.
- **Monitor** tool, which provides a mechanism to poll for changes in the attributes of the managed objects.

The LA-110 MD determines the:

- GUI labels on the form
- Rules for entering values on the form
- Available options behind the menu items.

The GUI forms support following features:

- Standard Text/Data Elements: **Edit Box**, **Combo Box,** and **Table**.
- Standard buttons: **Save**, **Cancel**, **Close**, **Refresh**, **Navigator**, **Help**, and **Draw**.

Figure 2-9 shows a typical GUI form, the LA-110 Node Navigator (Expanded).

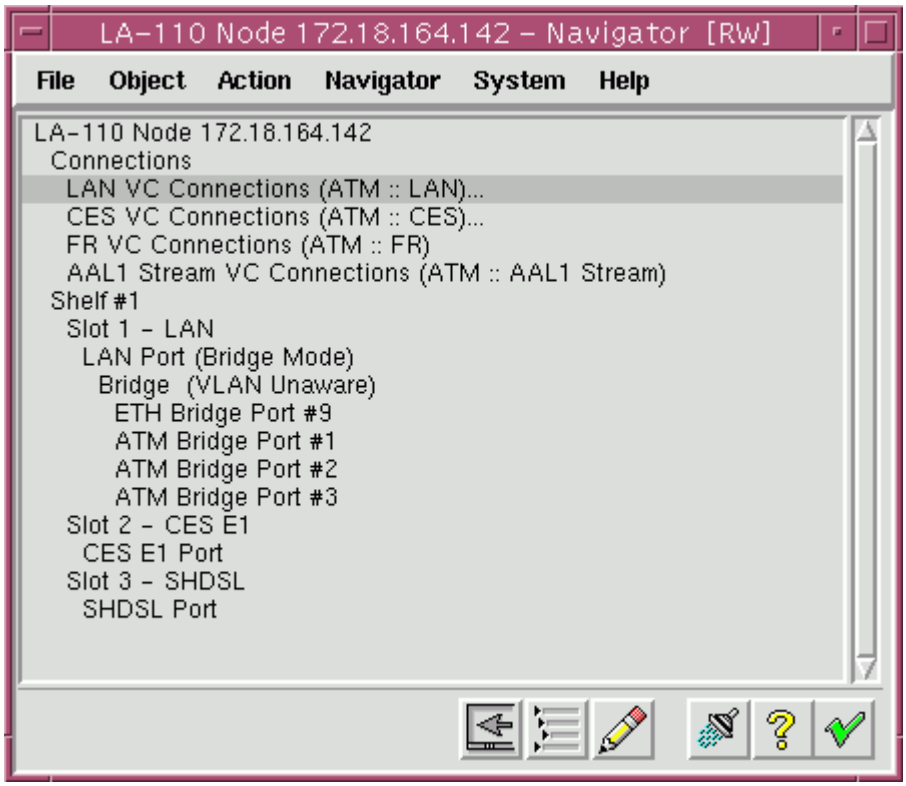


Figure 2-9. LA-110 Navigator

Alarm and Test Indication

Alarms and tests are indicated by the color of the frame around the port.

Card Status (only in 5620 Shelf View)

Card status is indicated by the following colors:

- Gray: Normal
- Red: All the other cases (alarm is present)

Card Status will be determined according to status of the port in this card:

- If the port on a card is Faulty: the card is colored red.
- Else – if the port is faulty: the card is colored gray.

Port Status

Port status is indicated by the following port colors:

- RED: Fault
- GREEN: OK
- PURPLE: Test/Unknown

  (Note that port status is Unknown when both the port status color is Purple and there is no loopback test running on the port.

Drawing Tool

The 5620 SNMP DM Drawing tool uses data provided by the LA-110 MD to display a graphical representation of the node's components and subcomponents (i.e. LA-110 front and rear panels as shown in *Figure 2-10*.

Each Drawing Tool module has toolbar buttons that enable the operator to launch appropriate Configure and Monitor forms for the selected interface.

Context sensitive menus allow you to invoke the Model Descriptor Configuration, Monitor, or other Forms.

➤ **To launch the Draw tool:**

1. In the 5620 Network map, right-click on an **LA-110 Node** icon, and select **Manage Object**.

   Draw displays a visual image of the managed device, including its components and their relevant status indications (see *Figure 2-10*).

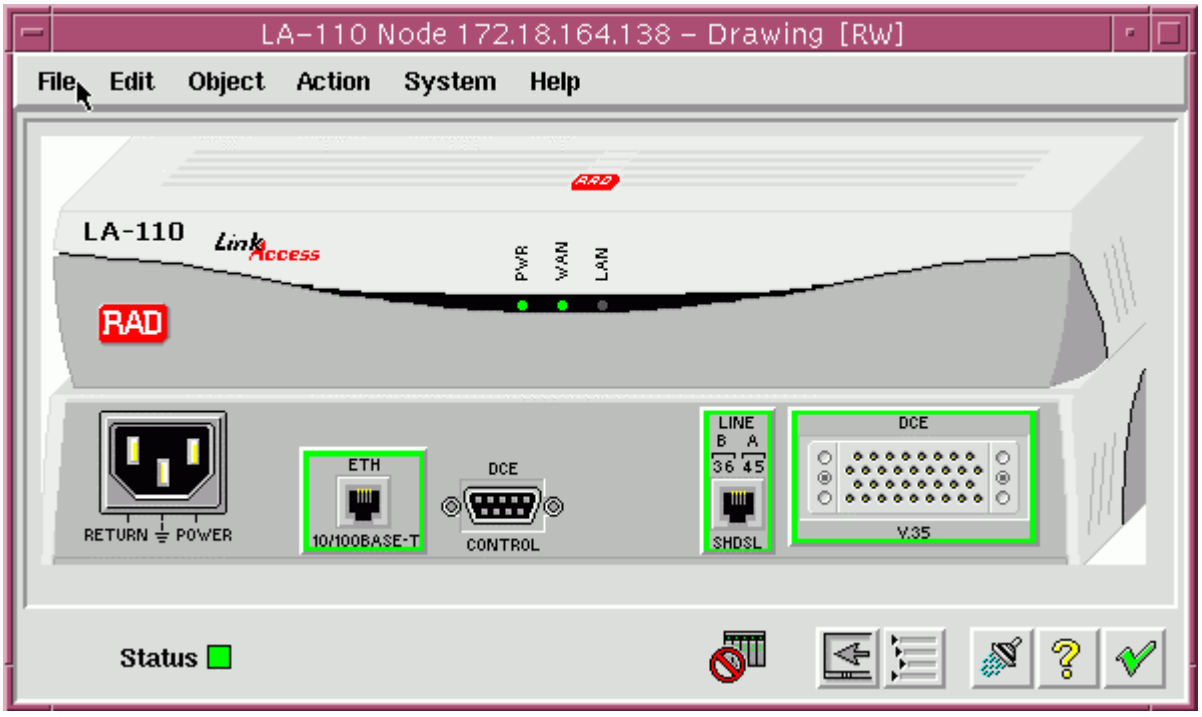


Figure 2-10. Draw Tool, LA-110 Front & Rear Panels

2. In the Draw application, select an object, right-click and select the following shortcut menu options:
   - **Configure** – provides appropriate forms to configure any object attributes in the managed device.
   - **Monitor** – offers a mechanism to monitor and report the status and changes in the attributes of the managed objects, using traps and SNMP queries.

Navigator Tool

The 5620 SNMP DM Navigator tool uses the data provided by the LA-110 MD to display the node's containment hierarchy. An ellipsis (…) indicates a container, which you can double-click to display components (user and network interfaces).

Context sensitive menus allow you to invoke the Model Descriptor Configuration, Monitor, or other Forms.

The Navigate tool provides a Navigator window that presents the components of the LA-110 node in a hierarchical list. Each node can be selected and expanded to view the components of the node. Each object in the hierarchy is a selectable object.

For each of these objects, the Configure and Monitor tools are often available through the Object menu button (or right mouse button click) of the 5620 SNMP DM form.

➤ **To launch the Navigator:**

- In the **Draw** application, click the **Navigator** button.

  As shown in *Figure 2-11*, the Navigator tool facilitates an auto-discovery block that maps the node, slot and interface into the managed object hierarchy.

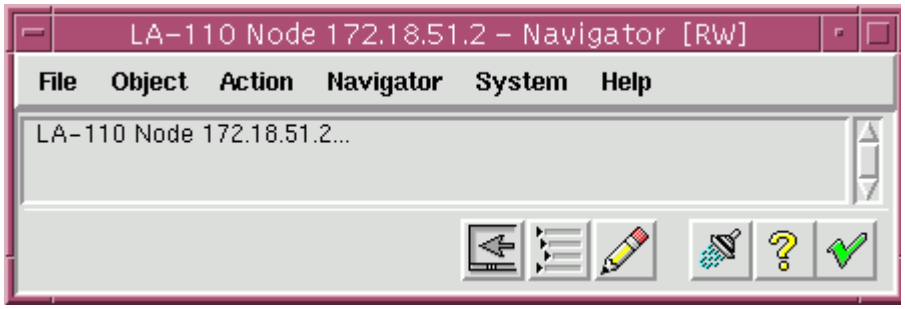


Figure 2-11. Navigator Tool (Collapsed upon Launching)

Configuration Tool

The Configuration tool allows you to configure the SNMP node attributes.

The LA-110 MD determines the basic attributes on the LA-110 node at the system and port levels.

Monitor Tool

Monitor forms are read-only; they allow 5620 SNMP DM users to monitor the node's objects. The LA-110 MD defines which attributes and statistics you can monitor on the 5620 SNMP DM GUI. Currently, the Monitor tool allows displaying only active alarms.

Rediscover Tool

The Rediscover tool is available for a number of components to allow you to explicitly check the population of subcomponents. There is no form associated with this action and the revised component list is shown on the Navigator form.

Note *When using the Rediscovery tool, it is not possible to manipulate other components until the process ends.*

Status Bar

A Status Bar is located on every form (or dialog box) of the LA-110 MD application.

The Status bar displays various error messages, such as "Node not responding', "General error" etc., and rediscovery indication.

Chapter 3

System Configuration and Monitoring

This chapter discusses how to configure and monitor the LA-110 system using LA-110 Model Descriptor.

Managing LA-110 includes the following tasks:

- Viewing and modifying system information
- Viewing and modifying system parameters
- Viewing and modifying host interface parameters
- Viewing and modifying traffic descriptor settings
- Viewing and modifying ATM to FR IWF settings
- Viewing and modifying the Manager list
- Selecting AAL1
- Viewing ATM to FR IWF Settings
- Viewing and modifying SNMP community parameters
- Viewing and modifying descriptor settings
- Viewing and modifying LA-110 preferences
- Viewing system faults
- Restoring LA-110 configuration to the default settings
- Resetting LA-110 system configuration
- Resetting all statistics.

Note *In the following procedures (and procedures throughout this manual), "right-click" refers to invoking a right mouse click in order to display shortcut menus related to the selected object.*

3.1 Selecting the System

Before you can perform system operations, you must first the select the system (i.e. node) in the 5620 SNMP Draw Mode or in the Navigator. (This procedure discusses how to select the system in the LA-110 Node Draw Mode.)

➤ **To select the system:**

- In the Entire Network map, select an LA-110 Node icon, right-click and select **Manage Object**.

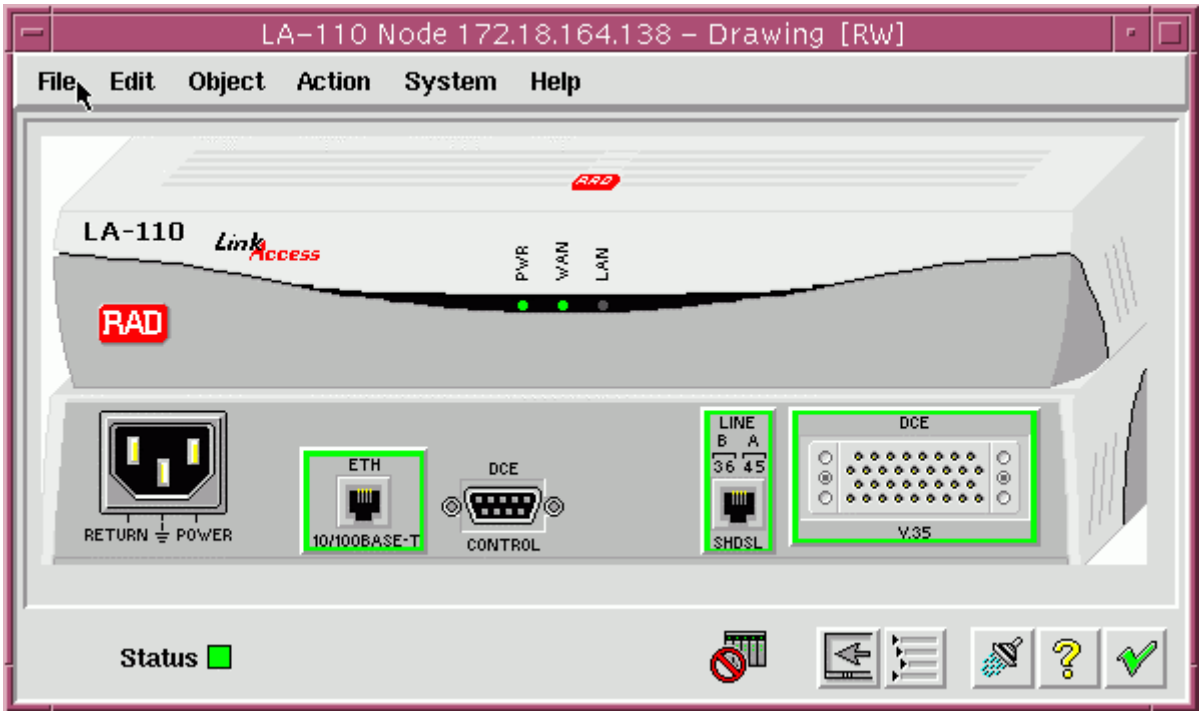


Figure 3-1. LA-110 Node

- Click inside the LA-110 Node Draw, without selecting a Port. Ensure that no border (or internal shading) surrounds any of the modules in the window.

  OR

- Click the **Left Arrow** button to return the focus to the node.

  When the focus is on the port, the selected port appears shaded. When the focus is on the System, the port is not highlighted.

The following menu-bar is available when the whole device is selected:

File Edit Object Action System Help

Figure 3-2. Menu Bar – Available when System is in Focus

3.2 Viewing and Modifying System Information

LA-110 MD allows you to view and modify LA-110 system information.

➤ **To view/modify the LA-110 system information:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > System Info**.

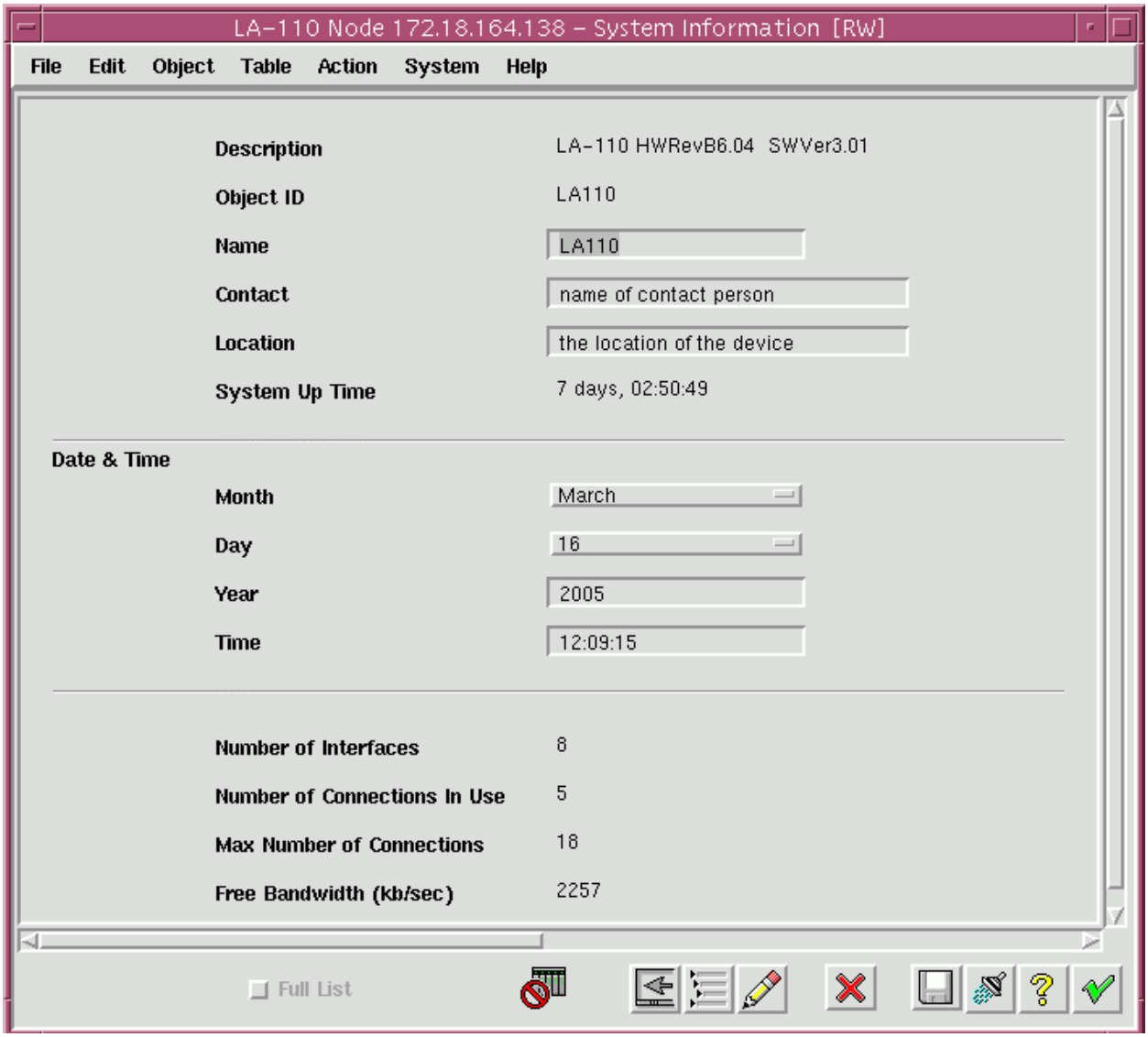


Figure 3-3. System Information Dialog Box

2. Fill in the fields, as described in *Table 3-1*.

3. Click <**Save**> to save the changes in the NMS.

   If there is active communication with the Agent, the NMS gets and saves within its database the parameters, as described in *Table 3-1*.

   If there is no communication with the Agent, the parameters listed in *Table 3-1* are displayed according to the values existing in the NMS database. The NMS will issue warnings about other parameters' values that are not obtainable.

Table 3-1. System Information Parameters

Parameters	**Possible Values / Remarks**
Description	Description of the entity, including the full name and version identification of the system's hardware type and operating system. Read-only
Object ID	Object identifier. Identifies the network management subsystem contained in the entity. This value is allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides an easy and unambiguous means for determining 'what kind of box' is being managed. Read-only
Name	Name of the managed node. String of up to 36 characters. By convention, this is the node's product name.
Contact	Name of contact person for this managed node, together with information on how to contact this person. String of up to 32 characters.
Location	Physical location of this node. String of up to 32 characters.
System Up Time	Time since the system was last re-initialized. **Format:** **d: days, hh:mm:ss** Read-only
Date & Time	The following are the system date and time parameters. When you choose the month, day, and year, and click <Save>, the NMS checks validity of the specified value. If an invalid value is entered, a warning message is issued in the status bar: "Invalid Date" without applying change to the system.
Month	**January - December**
Day	**1-31**
Year	**1970 - 2099**
Time	**Format:** **hh:mm:ss**
Number of Interfaces	The number of physical and logical interfaces within this node. Read-only
Number of Connections in Use	The number of physical connections in use. Read-only

Table 3-1. System Information Parameters (Cont.)

Parameters	Possible Values / Remarks
Max Number of Connections	The maximum number of connections. Read-only
Free Bandwidth (Kbps)	The available bandwidth. Read-only

3.3 Viewing and Modifying System Parameters

LA-110 MD allows you to view and modify system parameters of the ATM device.

➤ **To view/modify the LA-110 system parameters:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > System Parameters**.

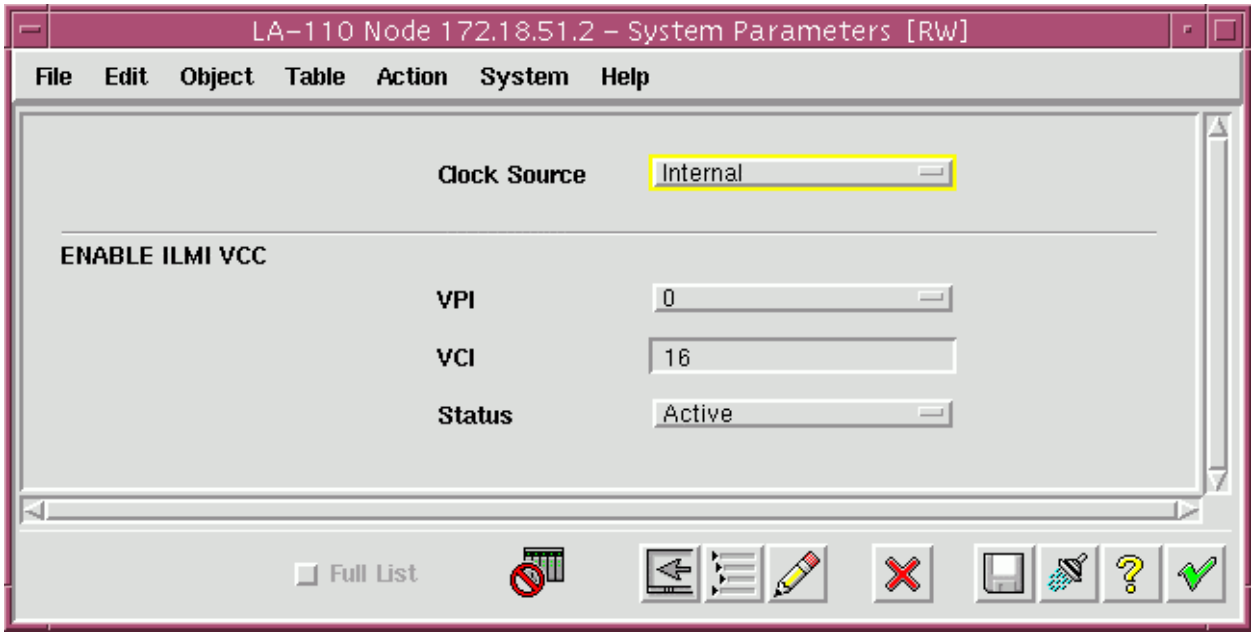


Figure 3-4. System Parameters Dialog Box

2. Fill in the fields, as described in *Table 3-2*.
3. Click <**Save**> to save the changes.

Table 3-2. System Parameters

Parameter	Valid Ranges/Remarks
Clock Source	Indicates which clock is used **Internal**, **Derived from Main**, **NTR**, **Adaptive**, **Derived from (E1) User** Read-only.
Enable ILMI VCC (If ILMI VCC is disabled, the following fields will be disabled.)	
VPI	The ILMI VPI **0..31**
VCI	The ILMI VCI **0..255**
Status	The ILMI status **Active**, **Not Active** Note the following: • ILMI VPI and VCI cannot both be set to zero • Changing the values of ILMI parameters may disconnect the NMS from the Agent • ILMI VCC should be different from the management channel.

3.4 Viewing and Modifying Host Interface Parameters

LA-110 MD allows you to determine the IP address of the host, the management channel, and the traffic parameters for this channel.

➤ **To view/modify host interface parameters:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > Host Interface Parameters**.

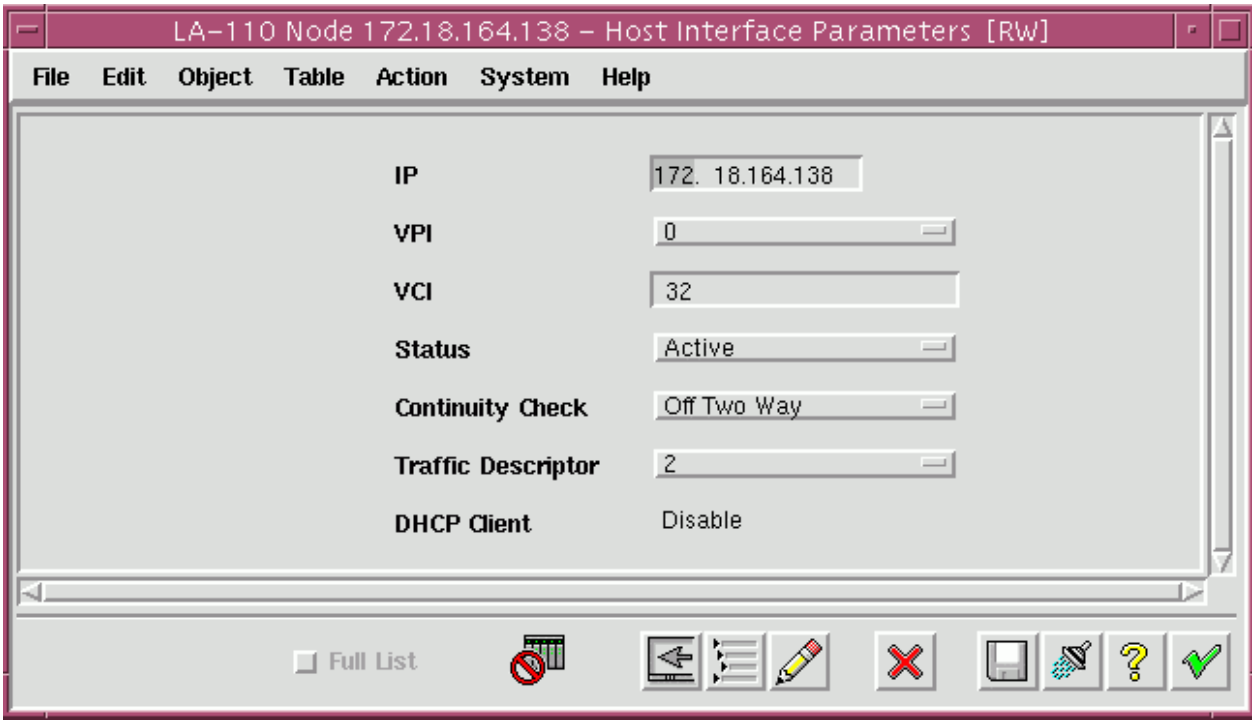


Figure 3-5. Host Interface Parameters Dialog Box

2. Fill in the fields, as described in *Table 3-3*.
3. Click <**Save**> to save the changes.

Table 3-3. Host Interface Parameters

Parameter	Valid Ranges/Remarks
IP	The IP address, in the range: **0.0.0.0 to 255.255.255.255**
VPI	The VPI **0..31**
VCI	The VCI **0..255**
Status	The VCC status **Active**, **Not Active**
Continuity Check	The VCC admin status **Off-two-way - down, On-two way – up, On-source, On-sink**
Traffic Descriptor	The traffic descriptor
DHCP Client	The client action **Disable, Enable** Read-only

Notes

- *Changing the properties of the management channel disconnects the NMS from the Agent.*
- *SNMP VPI and VCI cannot both be set to zero.*
- *When working with a full bandwidth G.732s or G.732n E1-CES connection, you may experience problems managing the device when Shaping is set to HW mode. In this case, the workaround is to set the device to work in SW Shaping mode.*

3.5 Viewing and Modifying Traffic Descriptor Settings

The Traffic Descriptor window allows you to configure different settings for traffic parameters, and use these settings in multiple connections.

➤ **To configure the traffic descriptor:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > Traffic Descriptor**.

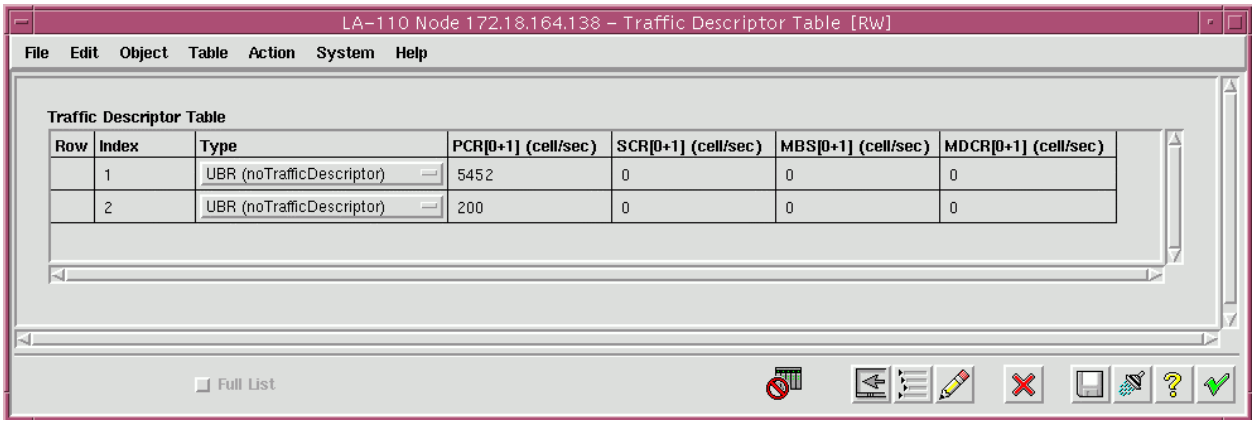

LA-110 Node 172.18.164.138 – Traffic Descriptor Table [RW]
File Edit Object Table Action System Help
Traffic Descriptor Table
Row Index Type PCR[0+1] (cell/sec) SCR[0+1] (cell/sec) MBS[0+1] (cell/sec) MDCR[0+1] (cell/sec)
1 UBR (noTrafficDescriptor) 5452 0 0 0
2 UBR (noTrafficDescriptor) 200 0 0 0
Full List

Figure 3-6. Traffic Descriptor

2. Fill in the fields, as described in *Table 3-4*.

Table 3-4. Traffic Descriptor Table Parameters

Parameter	Valid Ranges/Remarks
Traffic Descriptor Table	
Index	**1-200** Read-only When adding a row, this parameter is read-write.

Table 3-4. Traffic Descriptor Table Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Type	The ATM traffic descriptor type. The number of parameters and their meaning depends on the TD type. **UBR, UBR+, CBR, VBR** Read-only
PCR[0+1] (cell/sec)	Peak Cell Rate. The maximum rate of cells accepted from the user **79…5452**
SCR[0+1] (cell/sec)	Sustainable Cell Rate. The long-term average cell rate provided by the user. Relevant only to VBR mode **79…5452**
MBS[0+1] (cells)	Maximum Burst Size. The maximum number of cells allowed in a single burst. Longer bursts may be discarded. Relevant only to VBR mode **1…10 (default)…999**
MDCR (cell/sec)	Minimum Desired Cell Rate. Relevant only to UBR+ mode **1**…**200 (default)**…**5452**

3. To add a row to the Traffic Descriptor Table, select **Table > Add Row**.

   The Create a Row dialog box opens, in which you can configure the Traffic Descriptor Index.

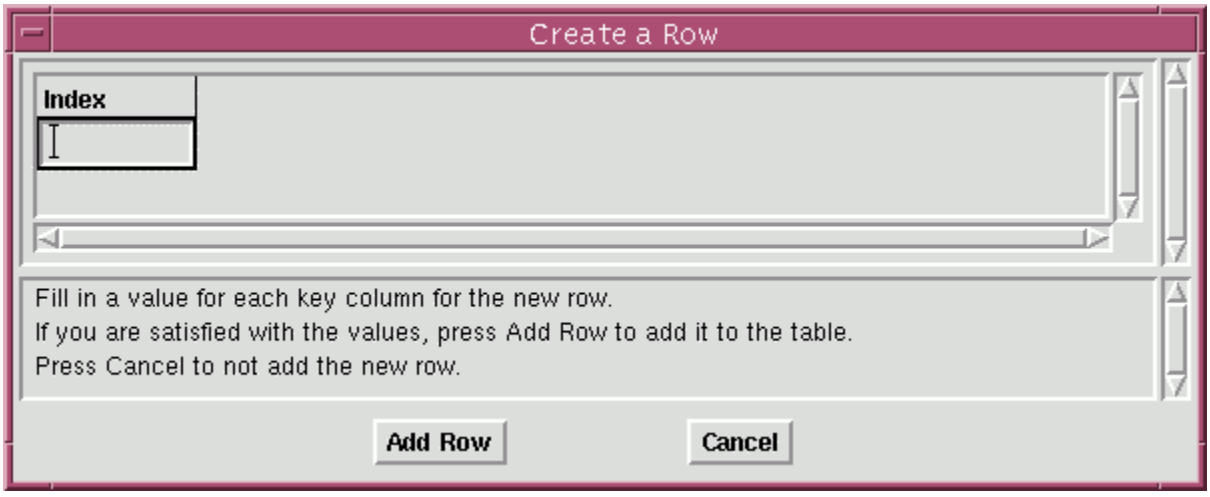

Create a Row
Index
Fill in a value for each key column for the new row.
If you are satisfied with the values, press Add Row to add it to the table.
Press Cancel to not add the new row.
Add Row
Cancel

Figure 3-7. Create a Row Dialog Box

4. Click <**Add Row**>.

   A new row is added to the table with the new values. You can add up to a maximum of 200 rows to the table.

5. To delete a row from the table, select a row and click <**Delete Row**>.

   A confirmation box opens, prompting you to confirm the deletion. Click <**Yes**> to delete the selected row or click <**No**> to cancel.

   If the row status is active (used by a connection), you cannot delete the row, and a corresponding failure message appears on the status bar: "Remove Fail – Traffic Descriptor is Active".

6. Click <**Save**> to save the changes.

Notes

- *The traffic descriptor cannot be changed after it is created.*
- *The minimum PCR value is 79.*

Table 3-5. Add/Change Traffic Descriptor Parameters

Parameter	Valid Ranges/Remarks
Type	The ATM traffic descriptor type. The number of parameters and their meaning depends on the TD type. Value of the traffic descriptor that applies to Index. **UBR:** No traffic descriptor **UBR+:** No Clp, No tagging MCR **CBR:** No Clp, No SCR **VBR:** No ClpScr Read-only
Traffic Descriptor Parameters	Dependent on the type select, and on the WAN physical line, as described in the following table.

Table 3-6. Traffic Descriptor Types, Dependent on Type Selected and WAN Physical Line

Type	UBR	UBR+	CBR	VBR
ATM Traffic Descriptor type	No Traffic Descriptor	ATM CLp, No tagging Mcr	No CLp No Scr	No CLp Scr
PCR[0+1] (cell/sec)	**79…Max. Line rate**, according to device Main Link (WAN) type (default value)	**79…Max. Line rate**, according to device Main Link (WAN) type (default value)	**79** (default value)**…Max. Line rate**, according to device Main Link (WAN) type	**79…Max. Line rate**, according to device Main Link (WAN) type (default value)

Table 3-6. Traffic Descriptor Types, Dependent on Type Selected and WAN Physical Line (Cont.)

Type	UBR	UBR+	CBR	VBR
SCR[0+1] (cell/sec)	--	--	--	**79 (default value)…5453**
MBS[0+1] (cells)	--	--	--	**1…999** (where 10 is default value)
MDCR (cell/sec)	--	**1…SHDSL 2W: 5453…(or SHDSL 4W: 10,868)**	--	--

3.6 Viewing and Modifying the Manager List

LA-110 MD features the Manager List, where you can set the NMS to which traps will be sent, by choosing the general and alarm trap masking options.

➤ **To view and modify the Manager List:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > Manager List**.

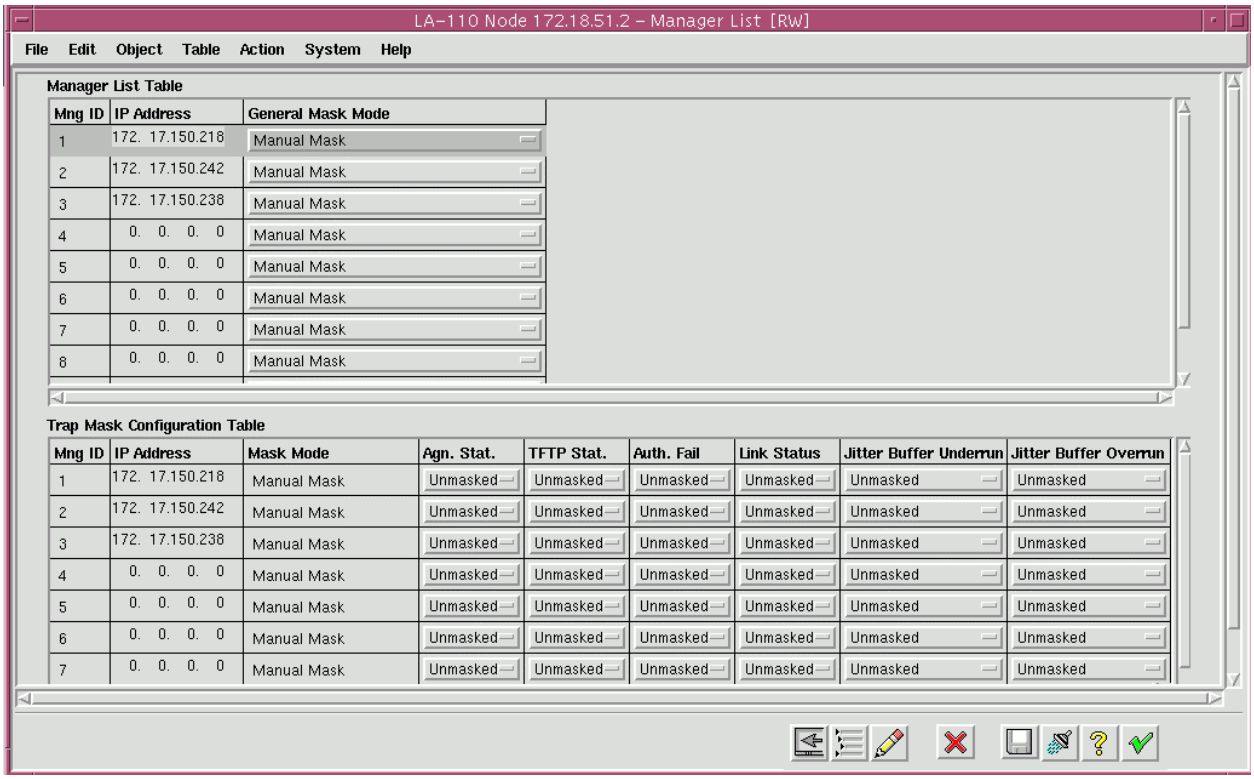

LA-110 Node 172.18.51.2 – Manager List [RW]
File Edit Object Table Action System Help
Manager List Table
Mng ID IP Address General Mask Mode
1 172. 17.150.218 Manual Mask
2 172. 17.150.242 Manual Mask
3 172. 17.150.238 Manual Mask
4 0. 0. 0. 0 Manual Mask
5 0. 0. 0. 0 Manual Mask
6 0. 0. 0. 0 Manual Mask
7 0. 0. 0. 0 Manual Mask
8 0. 0. 0. 0 Manual Mask
Trap Mask Configuration Table
Mng ID IP Address Mask Mode Agn. Stat. TFTP Stat. Auth. Fail Link Status Jitter Buffer Underrun Jitter Buffer Overrun
1 172. 17.150.218 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked
2 172. 17.150.242 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked
3 172. 17.150.238 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked
4 0. 0. 0. 0 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked
5 0. 0. 0. 0 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked
6 0. 0. 0. 0 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked
7 0. 0. 0. 0 Manual Mask Unmasked Unmasked Unmasked Unmasked Unmasked Unmasked

Figure 3-8. Manager List Dialog Box

2. In the Manager List Table (located at the top), select the general mask modes (per row entry), by selecting the relevant options from the drop-down lists. The options include: **Manual Mask, Mask All Traps, Mask Only Alarm Traps, Unmask Alarm Traps**.
3. In the Trap Mask Configuration Table, you can manually select the masking settings per specified traps. In the relevant Traps fields, from the drop-down lists, choose <**Masked>** or <**Unmasked>**. (The default trap value is "Unmasked").
4. View the fields, as described in *Table 3-7*.
5. Click <**Save**> to save the changes.

Note *The only changeable parameters in the Manager List are the Masking Traps.*

Table 3-7. Manager List Parameters

Parameter	Valid Ranges/Remarks
Manager List Table	
Manager ID	The manager ID. **1…10** Read-only
IP Address	When adding a row, this parameter is read-write and has a range of 0.0.0.0 to 255.255.255.255 Read-only
General Mask Mode	The general mask mode • **Manual Mask:** The traps in the Trap Masking Mode Table can be configured manually • **Mask All Traps:** All the traps in the Trap Masking Mode Table will be masked • **Mask Only Alarm Traps:** Only the Alarm Traps in the Trap Masking Mode Table will be masked • **Unmask Alarm Traps:** The Alarm Traps in the Trap Masking Mode Table will be unmasked
Trap Masking Configuration Table	
Agn Stat.	Affects the agnStatusChangeTrap **Unmasked, Masked**
TFTP Stat.	Affects the tftpStatusChangeTrap **Unmasked, Masked**
Auth. Fail	Affects the authenticationFailure trap **Unmasked, Masked**

Table 3-7. Manager List Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Link Status	Indictates whether the linkDown or linkUp.traps should be generated for this interface. **Unmasked, Masked**
Jitter Buffer Underrun	Affects the atmSuJitterBufferUnderrun trap **Unmasked, Masked**
Jitter Buffer Overrun	Affects the atmSuJitterBufferOverrun trap**Unmasked, Masked**
No Buffer to Network	Affects the atmSuAgnNoBuffertoNetwork trap **Unmasked, Masked**
Sync on Low Rate	Affects the agnActualLowRate trap **Unmasked, Masked**
DB Checksum Error	Affects the agnConfigDBChecksumError trap **Unmasked, Masked**
Param. Change During Upgrade	Affects the agnParametersValueChanged trap **Unmasked, Masked**
Alr. Buff. Overflow	Affects the agnAlarmBufferOverflow trap **Unmasked, Masked**
Alr. Buff. Clear	Affects the agnAlarmBufferClear trap **Unmasked, Masked**
BW Exc. Alloc	Affects the atmAceUnavailableBw trap **Unmasked, Masked**
LCD	Affects the atmAceAlarmLCD trap **Unmasked, Masked**
VC Cont. Loss	Affects the atmAceAlarmVcContinuityLoss trap **Unmasked, Masked**
VC Rx AIS	Affects the atmAceAlarmVcAISReception trap **Unmasked, Masked**
VC Rx RDI	Affects the atmAceAlarmVcRDIReception trap **Unmasked, Masked**
VC OAM LB Fail.	Affects the atmAceAlarmVcLoopback trap **Unmasked, Masked**
SHDSL Driver Mismatch	Affects the gnDriverSwMismatch trap **Unmasked, Masked**
SHDSL EOC LB	Affects the radHdsl2ShdslLoopBack trap **Unmasked, Masked**

Table 3-7. Manager List Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Data LLB	Affects the atmSuDataLocalLoopback trap
	Unmasked, Masked
Data RLB	Affects the atmSuDataRemoteLoopback trap
	Unmasked, Masked
Manager List Traps	**E1** traps exists only if **CES- E1 port exists** on the device
AIS	Affects the ds1Ais trap
	Unmasked, Masked
BPV Error	Affects the ds1BpvError trap
	Unmasked, Masked
CRC4 Error	Affects the ds1Crc4Error trap
	Unmasked, Masked
Frame Slip	Affects the ds1LinkFrameSlip trap
	Unmasked, Masked
E1 Loc. MF Alr.	Affects the ds1LocalMultiframeAlarm trap
	Unmasked, Masked
E1 Rem. MF Alr.	Affects the ds1RemoteMultiframeAlarm trap
	Unmasked, Masked
E1 Loc. Sync Loss	Affects the ds1LocalSyncLoss trap
	Unmasked, Masked
E1 Rem. Sync Loss	Affects the ds1RemoteSyncLoss trap
	Unmasked, Masked
E1 AIS Sync Loss	Affects the ds1AisSyncLoss trap
	Unmasked, Masked
E1 User RLB	Affects the ds1RemoteLoop trap
	Unmasked, Masked
E1 User LLB	Affects the ds1LocalLoop trap
	Unmasked, Masked
Signal Loss	Affects the ds1SignalLoss trap
	Unmasked, Masked
E1 Ex. BPV Erro	Affects the ds1ExcessiveBpv trap
	Unmasked, Masked
CRC4 Ex. Error	Affects the ds1ExcessiveCrc4Error trap
	Unmasked, Masked

Table 3-7. Manager List Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Error Ex. Ratio	Affects the ds1ExcessiveErrorRatio trap **Unmasked, Masked**
Frame Ex. Sli	Affects the ds1ExcessiveFrameSlip trap **Unmasked, Masked**
E1 Ex. Loc. MF Alr.	Affects the ds1ExcessiveLocalMfAlarm trap **Unmasked, Masked**
E1 Ex. Rem. MF Alr.	Affects the ds1ExcessiveRemoteMfAlarm trap **Unmasked, Masked**
E1 Ex. Loc. Sync Loss	Affects the ds1ExcessiveLocalSyncLoss trap **Unmasked, Masked**
E1 Ex. Rem. Sync Loss	Affects the ds1ExcessiveRemoteSyncLoss trap **Unmasked, Masked**

3.7 Selecting AAL1

Note *The AAL1 mode selection option is only available if the system is set to AAL2 mode.*

➤ **To view and modify the Manager List:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > AAL1 Selection**.

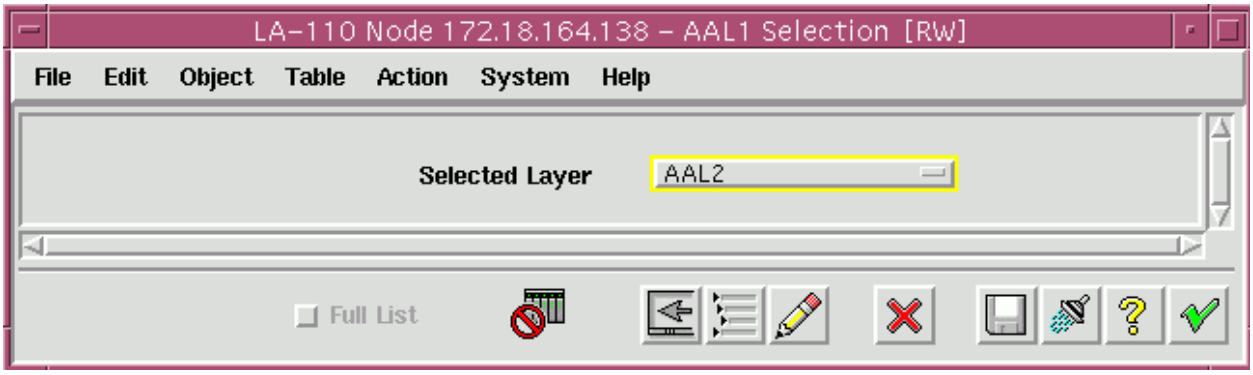


Figure 3-9. AAL1 Dialog Box

2. From the Selected Layer drop-down list, choose <**AAL1**>.
3. Click <**Save**> to save the changes.

3.8 Viewing ATM to FR IWF Settings

You can select the Frame Relay interworking mode: network interworking per FRF.5 or service interworking per FRF.8.

- The network interworking mode, defined in FRF.5, is used to interconnect Frame Relay equipment through an ATM network. You can configure the way the Frame Relay traffic control parameters are converted to the cell loss priority (CLP) indicator used on the ATM connection, and back.
- Service interworking mode, defined in FRF.8, is used to interconnect an equipment unit with Frame Relay interface to an equipment unit with ATM interface.

➤ **To view the ATM to FR IWF Table:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > ATM to FR IWF Table**.

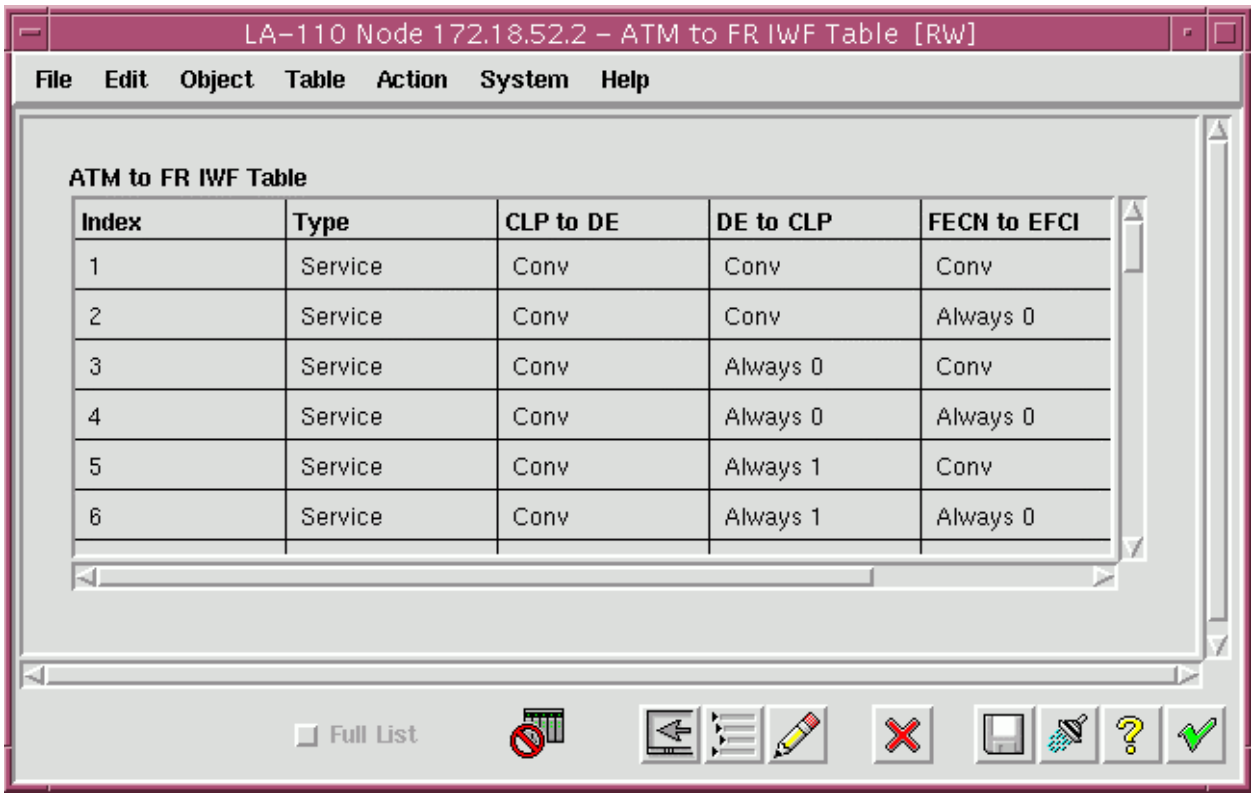

LA–110 Node 172.18.52.2 – ATM to FR IWF Table [RW]
File Edit Object Table Action System Help
ATM to FR IWF Table
Index | Type | CLP to DE | DE to CLP | FECN to EFCI
1 | Service | Conv | Conv | Conv
2 | Service | Conv | Conv | Always 0
3 | Service | Conv | Always 0 | Conv
4 | Service | Conv | Always 0 | Always 0
5 | Service | Conv | Always 1 | Conv
6 | Service | Conv | Always 1 | Always 0
Full List

Figure 3-10. ATM to FR IWF Table

2. View the fields, as described in *Table 3-8*.

Table 3-8. Frame Relay Descriptor Parameters

Parameter	Valid Ranges/Remarks
FR Descriptor Table	
Index	When adding a row, this parameter is read-write and has a range of 1–2147483647 Read-only
Type	The interworking function performed by LA-110 in accordance with the Frame Relay equipment connected to the Data port • **Service:** LA-110 operates in the service interworking mode enabling Frame Relay equipment to communicate with ATM equipment • **Network:** LA-110 operates in the network interworking mode enabling Frame Relay equipment to communicate with other Frame Relay equipment over an ATM network. Read-only
CLP to DE	The method used to derive the discard eligibility (DE) bit sent to the frame relay equipment connected to LA-110, using the CLP bit carried by the ATM cells • For Network Case: Conv SSCS, Conv • For Service Case: Conv, Always 0, Always 1 • Always 0: Sets the CLP bits to 0 • Always 1: Sets the CLP bits to 1 • Conv: CLP bit is derived from the DE bit received from the frame relay equipment connected to LA-110 Read-only
DE to CLP	Specifies the method used to derive the cell loss priority (CLP) bit to be sent in the ATM network cells, from the DE bit of Frame Relay frames The options include: • **Always 0:** Sets the CLP and DE bits to 0 • **Always 1:** Sets the CLP and DE bits to 1 • **Convert:** In the receive path, the DE bit is derived from the CLP bit received from the ATM network (if one of the cells carries CLP = 1, the DE will be set to 1). In the transmit path, the CLP bit is derived from the DE bit received from the Frame Relay equipment Read only

Table 3-8. Frame Relay Descriptor Parameters (Cont.)

Parameter	Valid Ranges/Remarks
FECN to EFCI	Specifies the method used to convert the forward explicit congestion notification (FECN) information to the congestion indication (CI) bit, or the explicit forward congestion indication (EFCI) bit, to be inserted in the ATM cells • **Always 0:** Ignores the FECN bit received from the Frame Relay equipment connected to the data port, and always set the EFCI bit to 0 • **Conv:** In the receive path, the EFCI/CI bit is derived from the received FECN bit Read only
Upper Layer Mapping	Protocol handling method • **Transparent:** Transparently transfers encapsulation header • **Translation:** Converts the encapsulation header from RFC 1490 (FR) to RFC 1483 (ATM) Read-only

3.9 Viewing and Modifying SNMP Community

SNMP delimits management domains by defining communities. Each community is identified by a name, which is an alphanumeric string of up to 255 characters defined by the user.

The 5620 Model Descriptor for LA-110 SNMP agent defines strings of up to 10 characters (case sensitive, numeric and alphabetical).

Any SNMP entity (both managed entities and management stations) is assigned a community name by its user. In parallel, the user defines a list of the communities for each SNMP entity that are authorized to communicate with the entity, and the access rights associated with each community (this is the SNMP community name table of the entity).

In general, SNMP agents support two types of access rights:

- **Read**: The SNMP agent accepts and processes only SNMP **getRequest** and **getNextRequest** PDUs with matching community names.
- **Write**: The SNMP agent accepts and processes all the SNMP commands received from a management station with matching community names.

➤ **To view and modify SNMP community:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > SNMP Community**.

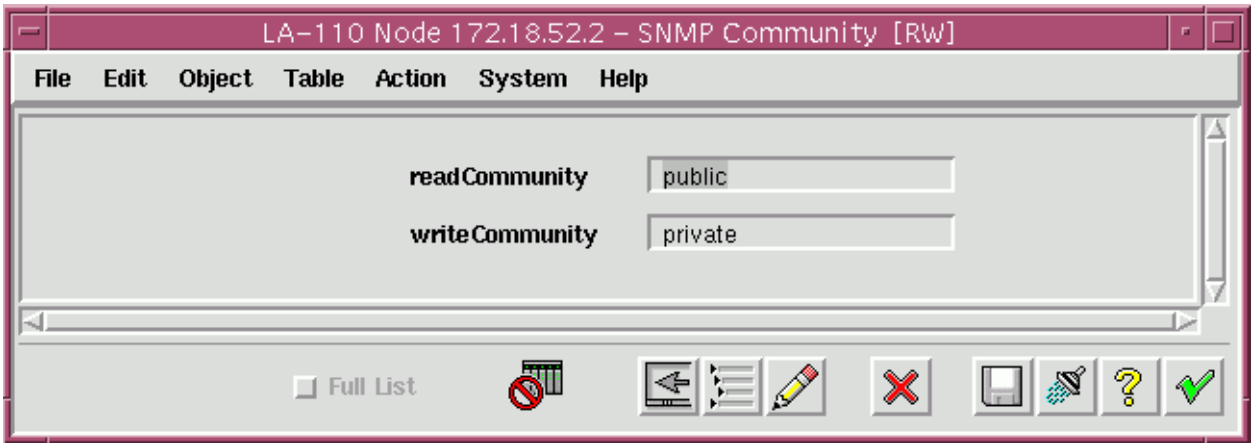


Figure 3-11. SNMP Community Dialog Box

2. Fill in the fields, as described in *Table 3-9*.
3. Click <**Save**> to save the changes.

Table 3-9. SNMP Community Parameters

Parameters	Possible Values / Remarks
read Community	The community string sent with a get/getNext request pdu from the NMS Default value: **public**
write Community	The community string sent with a set request pdu from the NMS Default value: **private**

3.10 Viewing and Modifying Descriptor Settings

LA-110 MD allows you to view the current MD version and modify descriptor settings for debugging purposes.

➤ **To view and modify descriptor settings:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > Descriptor Settings**.

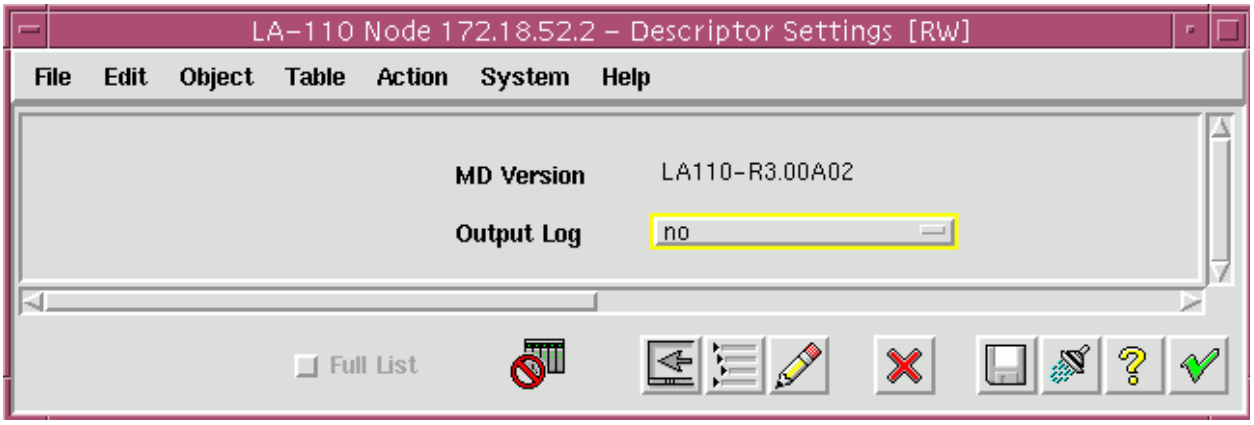


Figure 3-12. Descriptor Settings Dialog Box

2. Fill in the fields, as described in *Table 3-10*.
3. Click <**Save**> to save the changes.

Table 3-10. Descriptor Settings Parameters

Parameters	Possible Values / Remarks
MD Version	The MD version **String** Read-only
Output Log	The output log, allows you to determine whether actions will be recorded on a log file. The log file is created in /opt/netmgt/nodemgr/bin/log and is named NodeIPLA110.log. **No, Yes (File), Default (Transcript)**

3.11 Viewing and Modifying LA-110 Preferences

This section explains how to display and modify the LA-110 unit preferences.

Viewing and Modifying System Preferences

At the system level you can specify a path to the Web browser to be used for the online help file display.

➤ **To view and modify the system preferences:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > Preferences**.

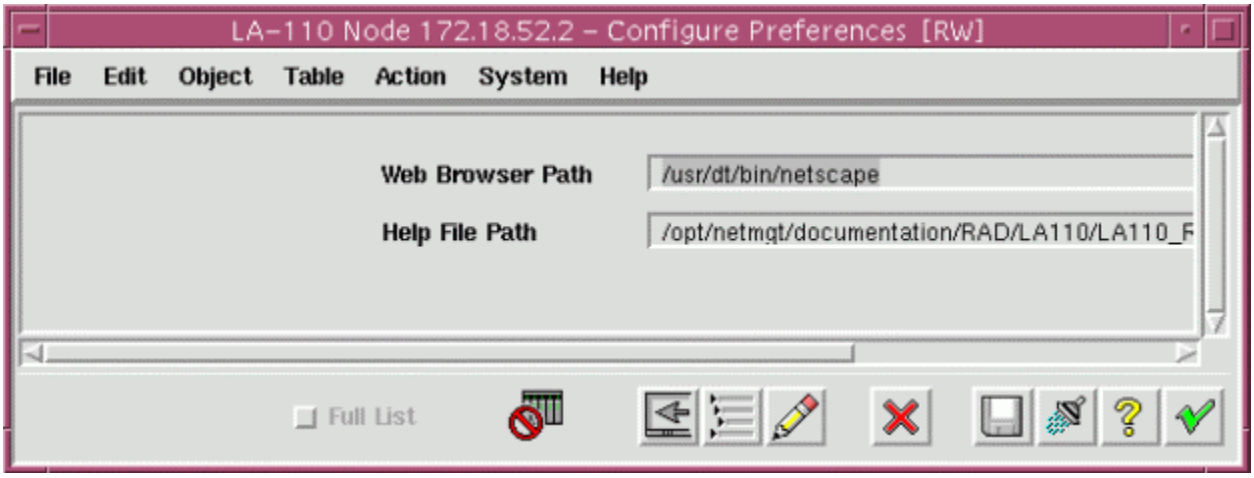


Figure 3-13. System Preferences

2. Enter the Web browser path. The default Web browser path is: /usr/dt/bin/netscape.

   If Mozilla is used, then change to the path where Mozilla is usually installed:

   /usr/local/bin/mozilla

3. Enter the help file path. The default help file path is: /opt/netmgt/documentation/RAD/LA110/LA110_R2_Descriptor_Help.htm

   The title bar at the top of the Configure Preferences window will show the System Name, the IP address of the node, and the name of the form as follows:
   LA-110 - *IP Address* - Configure Preferences

4. Click <**Save**> to save the changes.

3.12 Managing System Faults

This section discusses how to monitor system alarms, using LA-110 MD.

Viewing Active Alarms

LA-110 MD allows you to monitor active alarms in the LA-110 node.

➤ **To view active alarms in the LA-110 node:**

- In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select
  Monitor > All Active Alarms

  A Monitor form appears, displaying currently active alarms as shown in *Figure 3-14*.

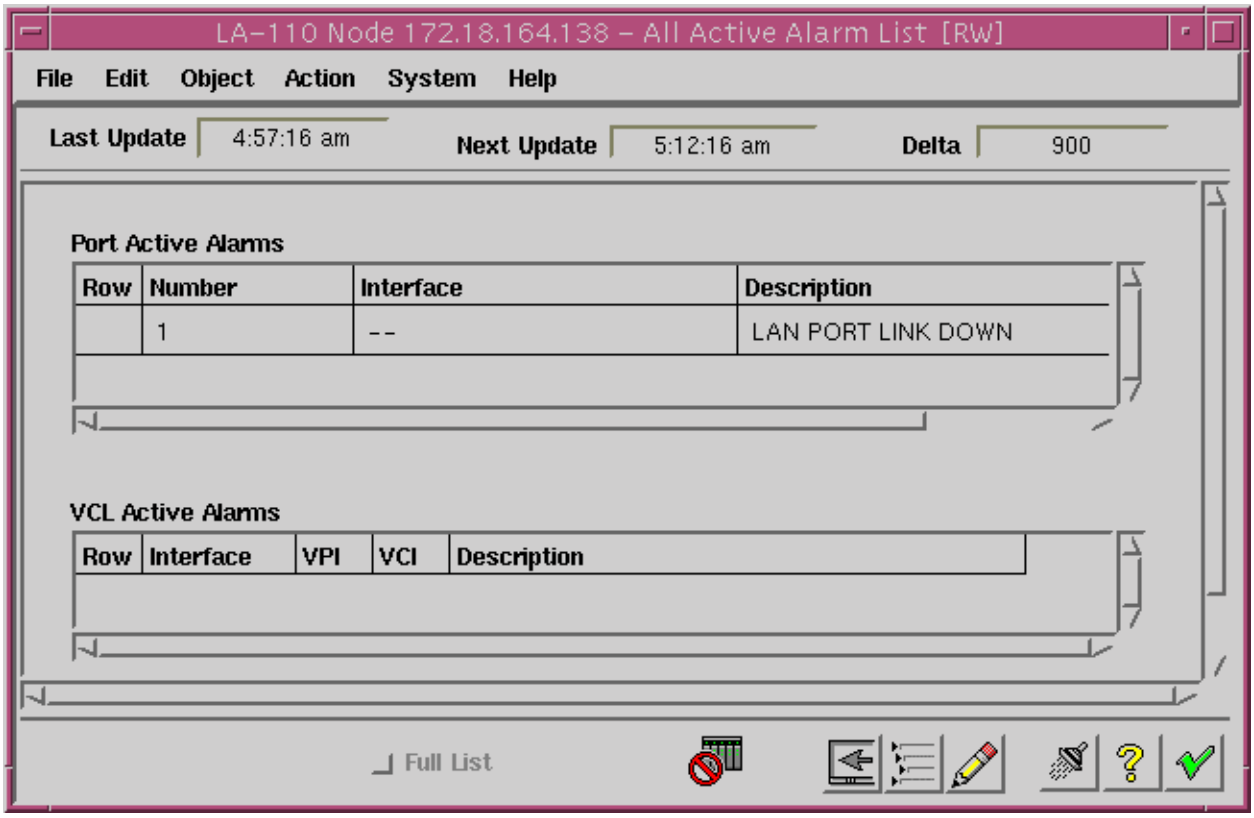


Figure 3-14. All Active Alarm List

Viewing Alarm History in the System Log Buffer

LA-110 MD provides a Log Buffer in which you can debug and trace problems.

This section discusses how to use LA-110 MD to view a list of the system alarms stored in the Agent Log Buffer.

➤ **To view alarm history log in the Log Buffer:**

1. In the LA-110 Node Draw, select the system, (as described in *Selecting the System*), and from the menu bar, select **Object > Configure > History Log List**.

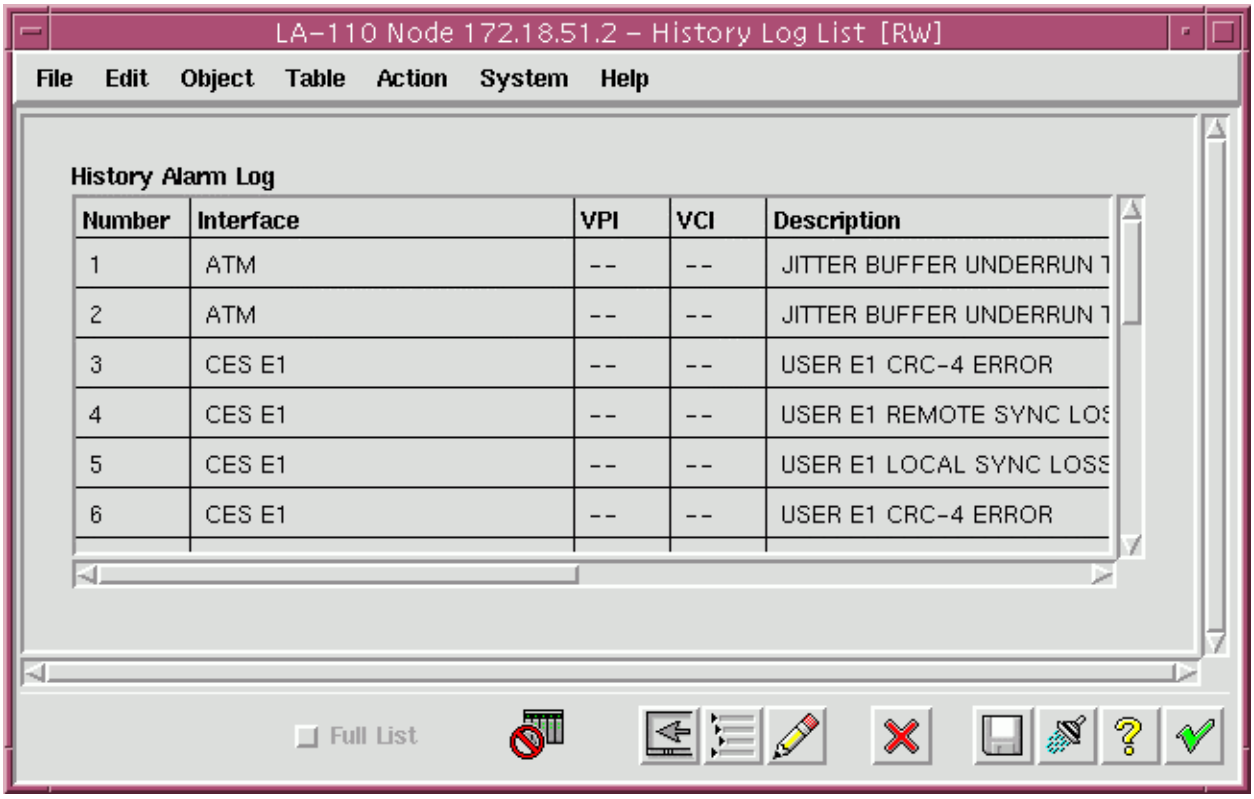


Figure 3-15. System Log Buffer Dialog Box

2. View the fields, as described in *Table 3-11*.
3. Click <**Refresh**> to refresh the data table.
4. Click <**Close**> to close the System Log Buffer form.

Table 3-11. System Log Buffer Parameters

Parameters	Possible Values / Remarks
System Log Table	
Number	The row's sequence number. Read-only
Interface	The inteface.
VPI	*Appears when relevant* Read-only
VCI	*Appears when relevant* Read-only
Description	Description of the event or alarm
Status	The system history alarm status **On, Off, Event**
Date & Time	The date and time the history alarm occurred. **String: YYY-MM-DD, hh:mm:ss**

Clearing the History Log

This section discusses how to use LA-110 MD to clear the history log in the log buffer of the LA-110 node.

➤ **To clear the history log:**

1. In the LA-110 Node Draw, select the system (as described in *Selecting the System*), and from the menu bar, select **Action > Perform Action > Clear History Log**.

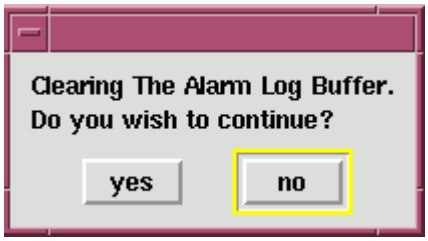


Figure 3-16. Clear History Log Confirmation Dialog Box

2. Click <**Yes**> to clear all the entries in the Log Buffer.

   The Agent resets the variable to **Off** after clearing the Log Buffer.

3.13 Resetting System Configuration

The LA-110 MD allows you to reset the LA-110 device.

Resetting the LA-110 device includes the following tasks:

- Restoring the default configuration
- Resetting the system.

Restoring the Default Configuration

➤ **To restore the default configuration:**

1. In the LA-110 Node Draw, select the system, (as described in *Selecting the System*), and from the menu bar, select
   Action > Perform Action > Reset Configuration.

   A confirmation box opens, displaying the following message:
   "Resetting Configuration. Operation will cause agent disconnection. Do you wish to continue?"
2. Click <**Yes**> to confirm the reset.

Resetting the System

LA-110 MD allows you to reset the device.

Note *The reset operation implements any changes that were made and updates the agent's configuration.*

➤ **To reset the system hardware:**

1. In the LA-110 Node Draw, select the system, (as described in *Selecting the System*), and from the menu bar, select
   Action > Perform Action > Reset HW.

   A confirmation box opens, displaying the following message:
   "Resetting the device. Operation may change system configuration. Do you wish to continue?"
2. Click <**Yes**> to reset the system.

   Unit reset is performed.

Resetting All Statistics

LA-110 MD allows you to reset all of the system statistics. It comes in handy especially in the case of running statistics counters forms.

➤ **To reset system statistics:**

1. In the LA-110 Node Draw, select the system, (as described in *Selecting the System*), and from the menu bar, select
   Action > Perform Action > Reset All Statistics.

   A confirmation box opens, displaying the following message:
   "Resetting all statistics. All counters are set to zero. Do you wish to continue?"

2. Click <**Yes**> to reset the statistics.

Viewing Online Help

For further referencing, an online help feature is available for researching questions quickly, and learning more about operating LA-110. The default help file path is: /opt/netmgt/documentation/RAD/LA110/LA110_R2_Descriptor_Help.htm.

➤ **To view online help topics:**

1. In the LA-110 Node Draw, select the system, (as described in *Selecting the System*), and from the menu bar, select
   Action > Perform Action > Online Help.

   A confirmation box opens, displaying the following message:
   "Opening Help files. Do you wish to continue?"

2. Click <**Yes**> to open the help file.

   The default Web browser with the default help file path opens.

Chapter 4

Port Configuration and Monitoring

This chapter discusses how to configure and monitor LA-110 ports using LA-110 Model Descriptor.

Managing ports includes the following tasks:

- Selecting ports
- Performing port operations
- Viewing port parameters
- Configuring ports
- Monitoring port performance.

4.1 Selecting Ports

LA-110 MD allows you to select or focus on a port to perform operations on it. This section discusses how to select ports using the LA-110 Node Draw and the LA-110 Navigator.

➤ **To select a port:**

1. In the Entire Network map, select an **LA-110** node icon, right-click and select **Object > Manage Object**.

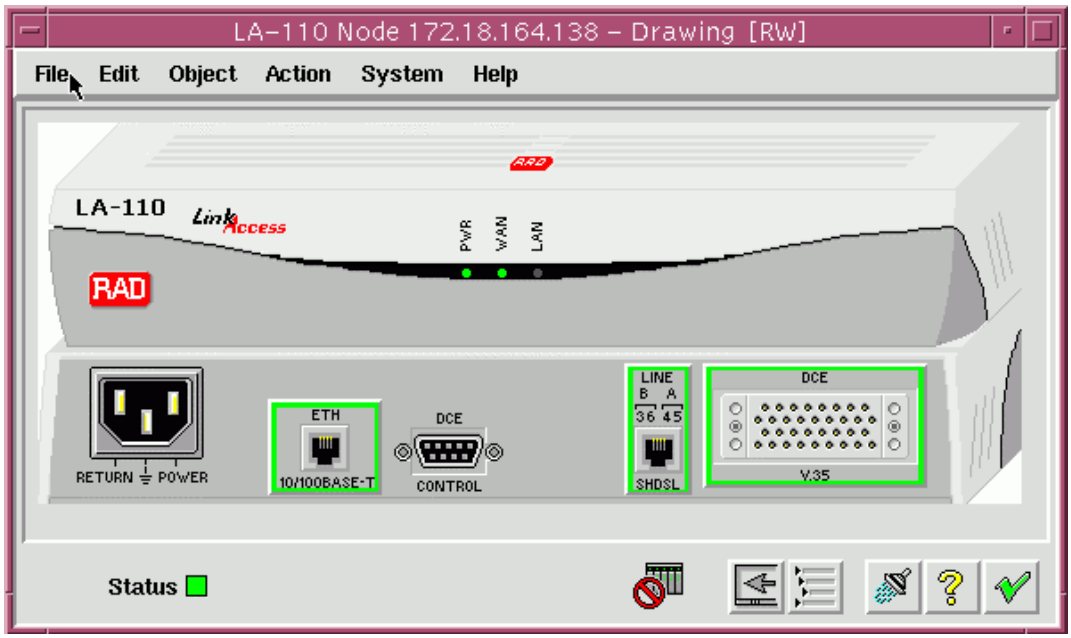


Figure 4-1. LA-110 Node Draw

2. Do any one of the following:
   - In the LA-110 Node Draw, select a port.

     The port appears shaded, indicating it is selected/in focus.

     The Port Draw is activated, displaying menu options relevant for port operations.

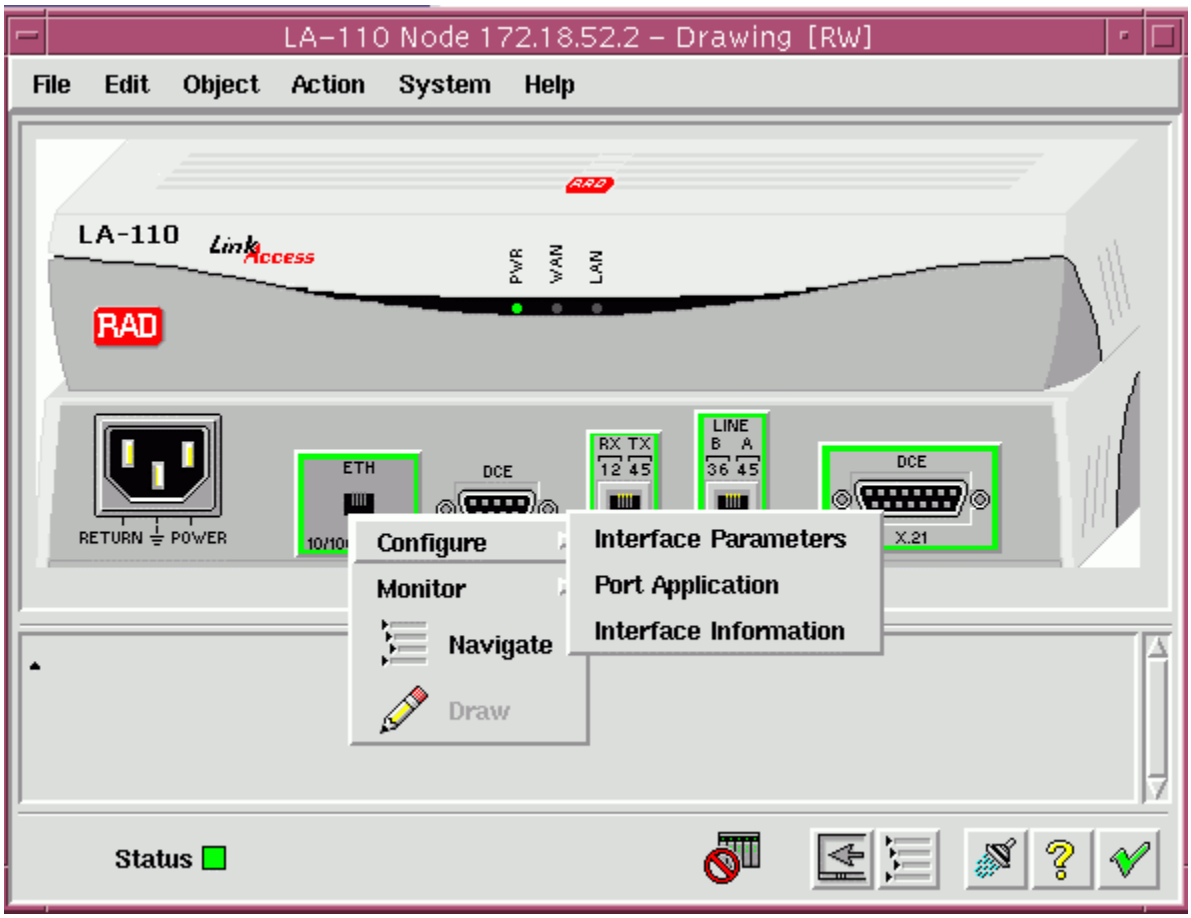


Figure 4-2. Port Draw – Shortcut Menu Options

OR

- In the LA-110 Node Draw, click to open the Navigator, click on the relevant container to display its ports, and then select the relevant port.

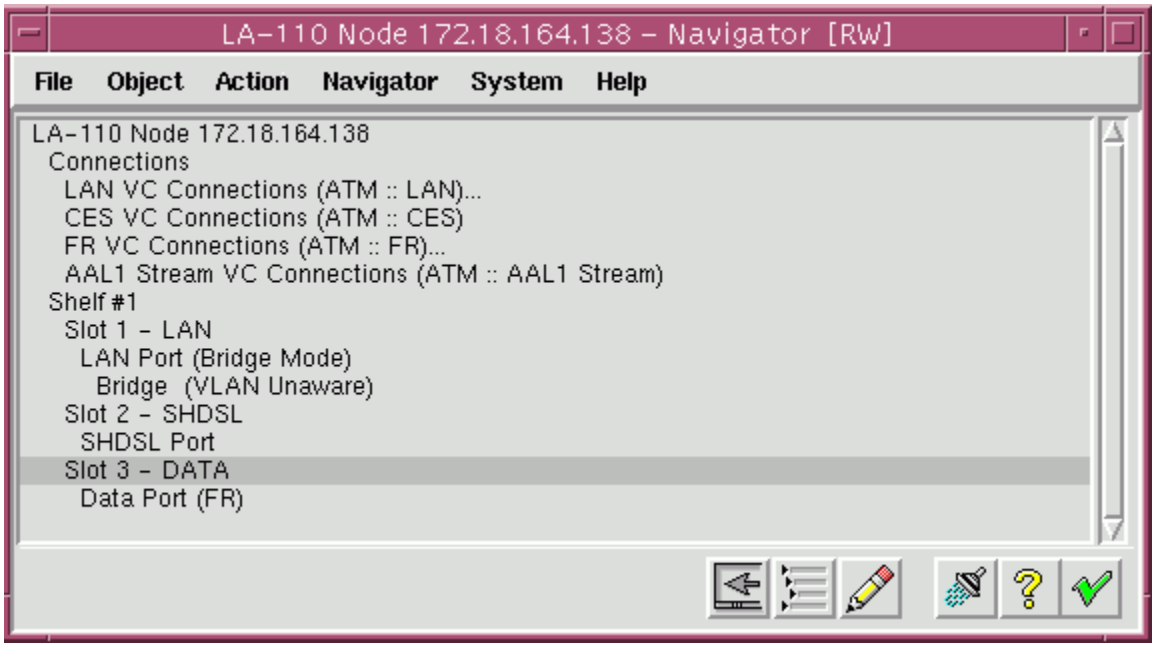

LA-110 Node 172.18.164.138 - Navigator [RW]
File Object Action Navigator System Help
LA-110 Node 172.18.164.138
Connections
LAN VC Connections (ATM :: LAN)...
CES VC Connections (ATM :: CES)
FR VC Connections (ATM :: FR)...
AAL1 Stream VC Connections (ATM :: AAL1 Stream)
Shelf #1
Slot 1 - LAN
LAN Port (Bridge Mode)
Bridge (VLAN Unaware)
Slot 2 - SHDSL
SHDSL Port
Slot 3 - DATA
Data Port (FR)

Figure 4-3. Navigator showing Ports

4.2 Performing Port Operations

➤ **To perform operations on ports:**

- In the Port Draw or Navigator, right-click on the selected port, and choose any of the shortcut menu options.

4.3 Viewing Port Parameters

When focusing on a LA-110 port, you can view its parameters. (Instructions for configuring the specific LA-110 ports appear in the following sections in this chapter.)

➤ **To view port parameters:**

1. In the LA-110 Node Draw, focus on the desired unit port.
2. Right-click on the port and select the relevant shortcut menu options:
   - For the Data port,
     select **Configure > FR Interface > Interface Parameters**
   - For the SHDSL port,
     select **Configure > Physical Layer** or **ATM Layer > Parameters**
   - For the E1 CES port,
     select **Configure > Parameters**
   - For the LAN port,
     select **Configure > Interface Parameters**

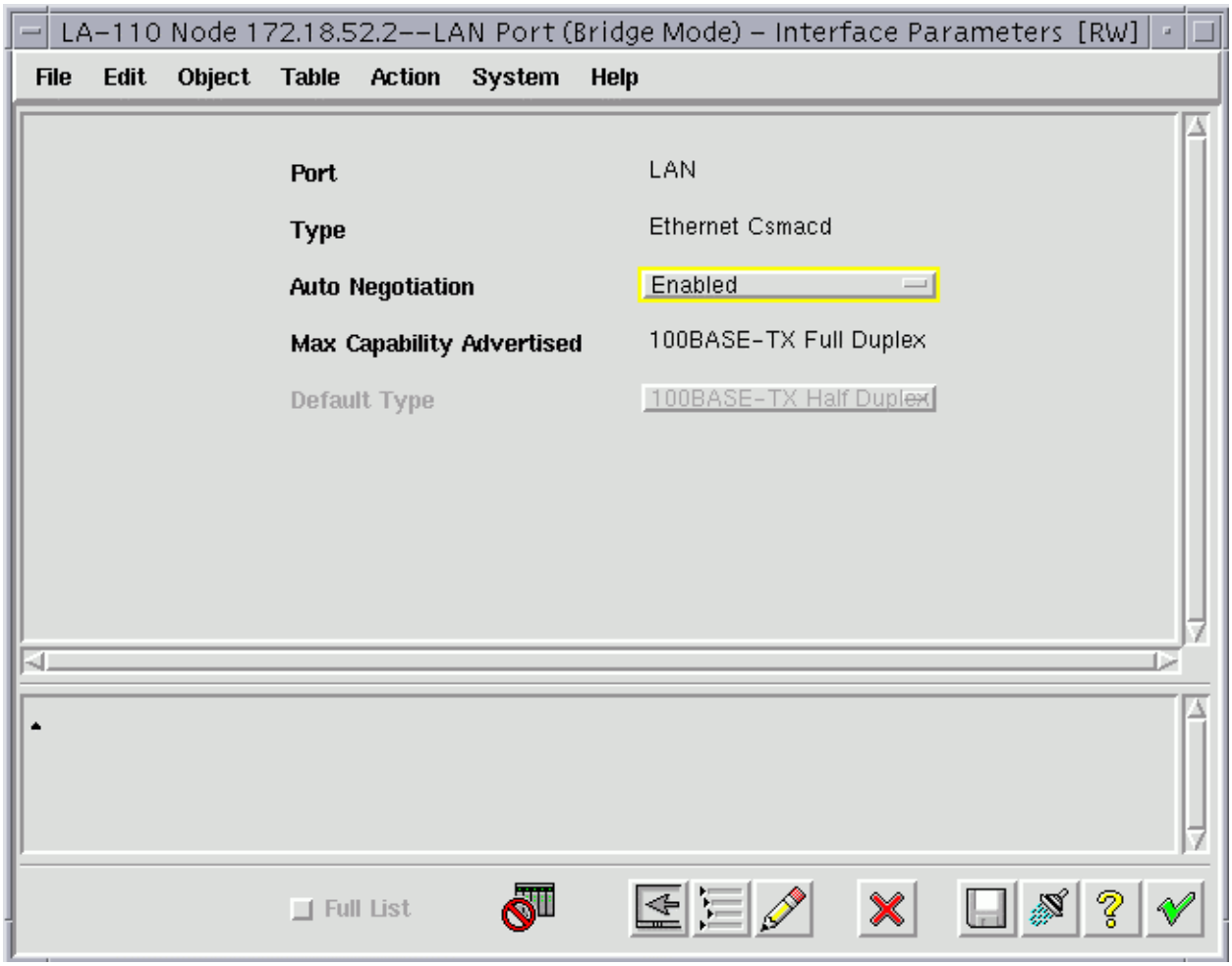


Figure 4-4. LAN Port Parameters

Note *To revert back to the system level – Node Draw, click* .

4.4 Configuring Ports

The following sections discuss how to configure LA-110 (ATM, Ethernet, CES, and Data) ports using the Node Draw. (*Alternatively, you can access ports in the Navigator by double-clicking on Shelf > Slot containers.*)

Topics include:

- Data (FR/AAL1 Stream) port configuration
- LAN port configuration – and Bridge port configuration
- SHDSL port configuration
- CES E1 port configuration.

4.5 Data Port Configuration

The data port is a synchronous serial port with a DCE interface. The interface type is user-configurable: RS-530, V.35, V.36 or X.21. (The physical adaptation is made by adapter cables.) The data port can be configured to operate at rates of n × 64 kbps in the range of 64 to 2048 kbps.

The service type is user-configurable:

- Transparent transmission of serial data stream
- Frame Relay service for connection to Frame Relay equipment. Up to 8 DLCIs are supported. The user can select between service interworking per FRF.8 and network interworking per FRF.5.

Basic tasks include viewing and configuring:

- Data port application
- Data FR application mode
- AAL1 Stream application mode.

Data Port Application

The Data port application determines the operation mode of the port (either Frame Relay or AAL1 Stream).

➤ **To configure the Data FR port application:**

1. In the LA-110 Node Draw, select the Data FR port, right-click and select **Configure > Data Port Application.**

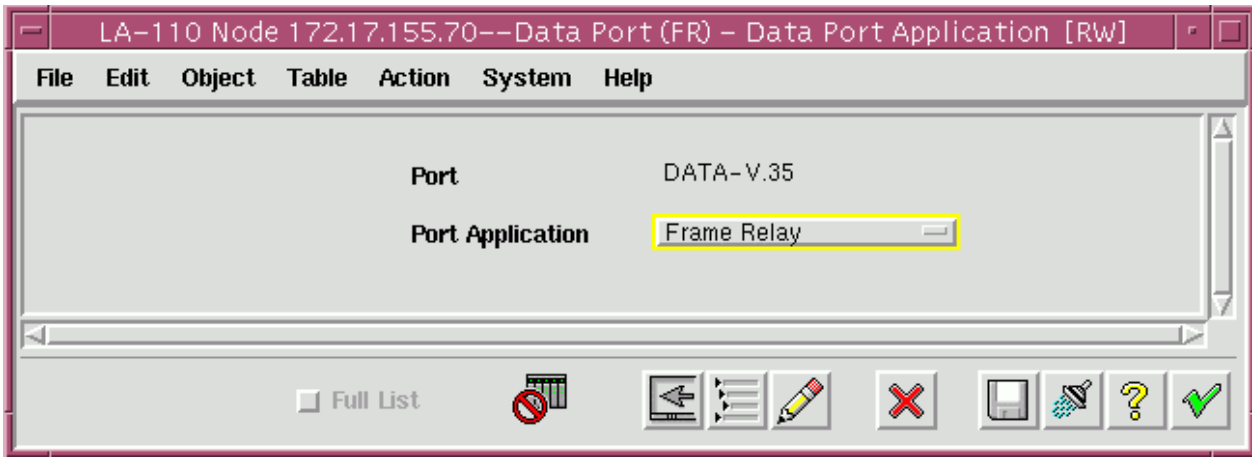


Figure 4-5. Data Port Application (Frame Relay Mode)

2. Fill in the fields, as described in *Table 4-1*.
3. Click <**Save**> to save the changes.

   If the data application was changed, a confirmation message dialog appears: "Data Port application change requires device Reset. Operation will DELETE AAL1/FR Connections and RESET the Device. Do You Wish to Continue?" Click <**Yes**> to confirm.

Table 4-1. Data Port Application Parameters

Parameter	Remarks
Port	The selected port Read-only
Port Application	The protocol application which runs above the physical port. **Frame Relay, AAL1 Stream**

Data FR Application Mode

When the LA-110 Data port is configured to support Frame Relay services, the traffic is carried over AAL5, per the selected ATM service category. You can define the desired ATM connection parameters in accordance with the application requirements.).

The number of supported DLCIs (Data Link Connection Identifiers) is 16, and the allowed range is 16 through 991.

Basic tasks include viewing and configuring:

- Interface information
- Interface parameters
- VC signaling information
- Loopback testing.

Interface Information

➤ **To view FR interface information:**

- In the LA-110 Node Draw, select the Data FR port, right-click and select **Configure > FR Interface > Interface Info.**

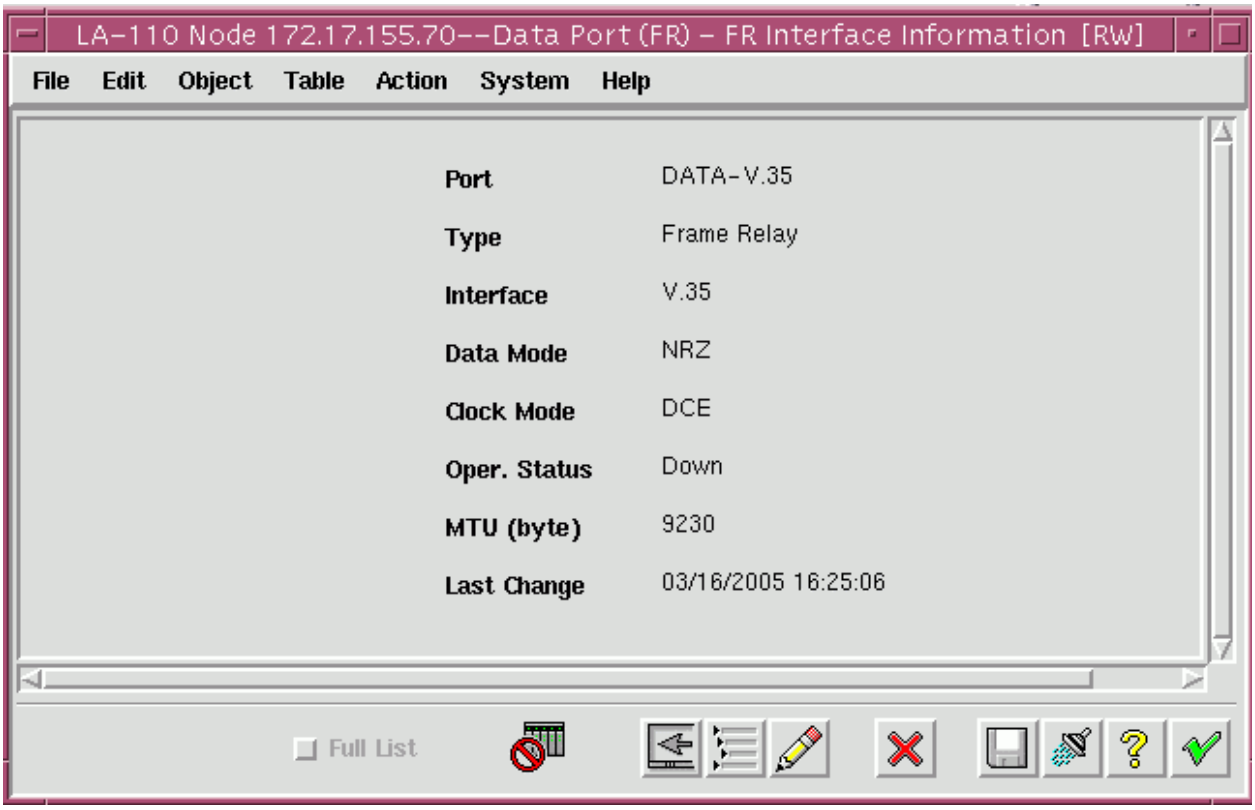


Figure 4-6. FR Interface Information

Table 4-2. FR Interface Information Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The protocol application which runs above the physical port. **Frame Relay** Read-only
Interface	The interface. **X.21, V.35, V.36** Read-only
Data Mode	This attribute indicates the port mode of sampling physical data. **NRZ1, NRZ** Read-only

Table 4-2. FR Interface Information Parameters (Cont.)

Parameter	Remarks
Clock Mode	Indicates the clock used for synchronization for the data port. **DCE** Read-only
Oper. Status	The actual link status. **Up, Down** Read-only
MTU (byte)	The size of the largest packet which can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface **Integer** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Interface Parameters

➤ **To configure FR interface parameters:**

1. In the LA-110 Node Draw, select the Data FR port, right-click and select **Configure > FR Interface > Interface Parameters.**

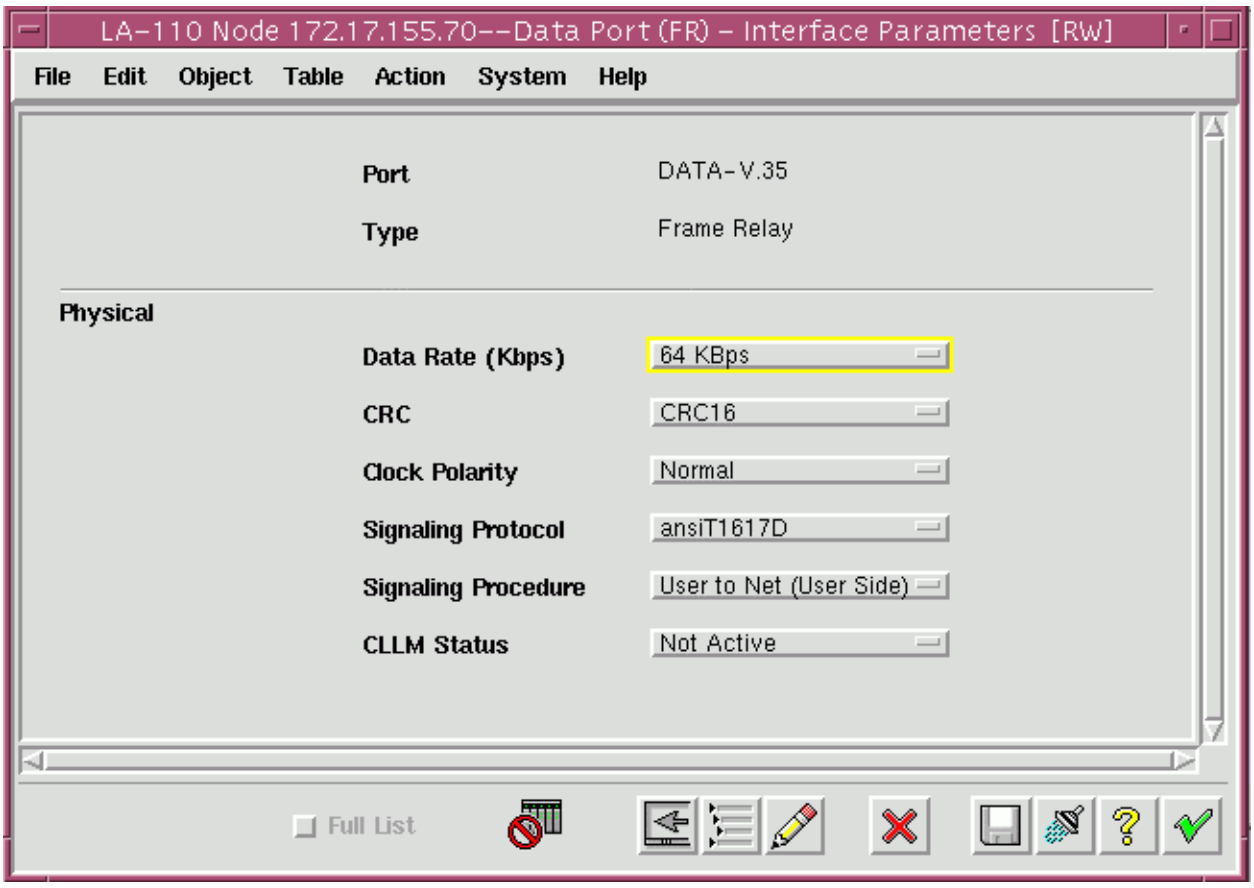


Figure 4-7. FR Interface Parameters

2. Fill in the fields, as described in *Table 4-3*.
3. Click <**Save**> to save the changes.

   If the data rate was changed, a confirmation message dialog appears: "Data Rate change requires device reset. Operation will RESET the Device. Do You Wish to Continue?" Click <**Yes**> to confirm.

   If the CRC value was changed, a confirmation message dialog appears: "CRC change requires device reset. Operation will RESET the Device. Do You Wish to Continue?" Click <**Yes**> to confirm.

Table 4-3. FR Interface Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The protocol application which runs above the physical port. **Frame Relay** Read-only

Table 4-3. FR Interface Parameters (Cont.)

Parameter	Remarks
Physical	
Data Rate (Kbps)	The operation rate of the port in kbps. **64, 128, 256...1792 Kbps** (in intervals of 64 kbps)
CRC	Specifies the CRC polynomial to be used for error detection by the data port. **CRC 16, CRC 32**
Clock Polarity	Specifies the relative clock polarity, for compatibility with user-equipment interface characteristics • **Normal:** Clock falling edge occurs in the middle of the bit interval • **Inverted:** Clock rising edge occurs in the middle of the bit interval
Signaling Protocol	Specifies the Frame Relay link control protocol to be used on the data port. ***Note**: The protocol must match the protocol used by the equipment connected to the data port* If the CLLM status is active: • No protocol is to be used • **CCITTQ933A:** ITU-T Rec. Q.933, Annex A • **ANSIT1617D:** ANSI T1.617, Annex D • LMI specification
Signaling Procedure	The Local In-Channel Signaling Procedure that is used. • **Not Applicable:** if the protocol is None • **User to Net (Network side)** • **User to Net (User side)** • **Bidirectional**
CLLM Status	Indicates if the configuration supports CLLM (Consolidated Link Layer Management). • **Active** • **Not Active:** if the protocol is IMI

VC Signaling Information

Note *This dialog is relevant only to DATA-FR port application when the Signaling Protocol is other than none.*

➤ **To view VC signaling information:**

- In the LA-110 Node Draw, select the Data FR port, right-click and select **Configure > FR Interface > VC Signaling Information.**

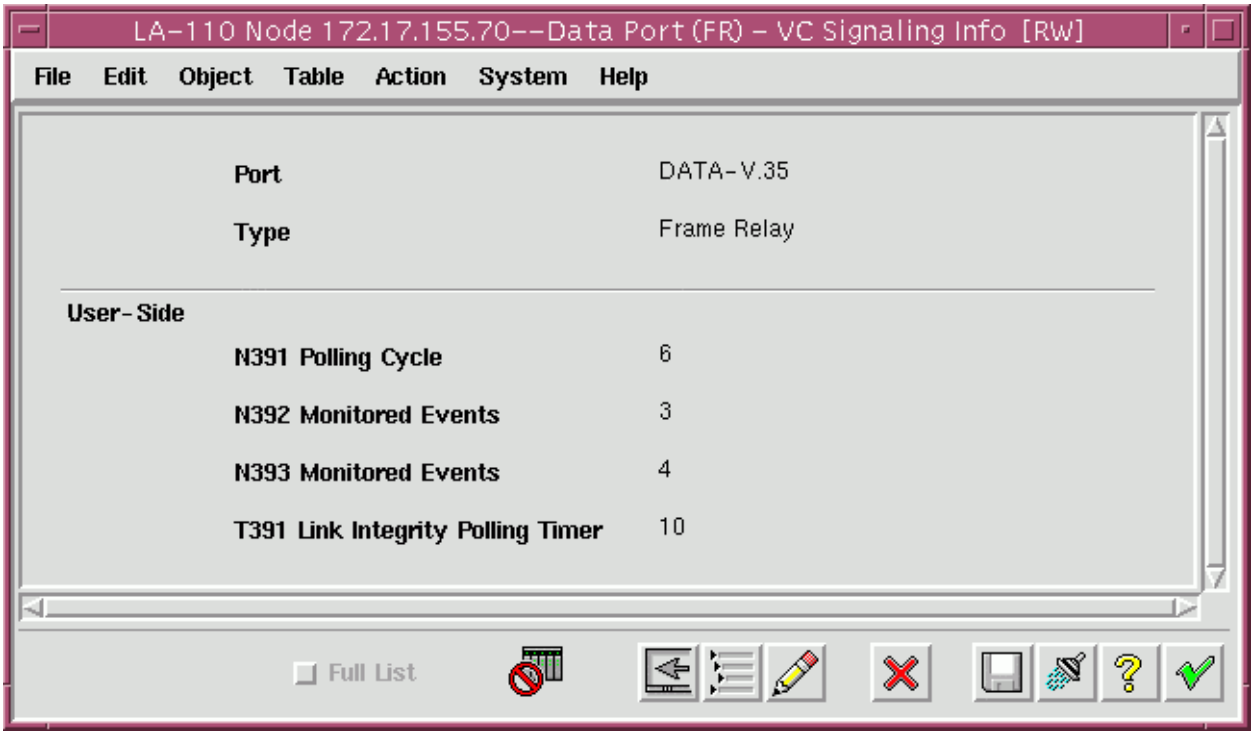


Figure 4-8. FR Interface VC Signaling Information

Table 4-4. FR Interface VC Signaling Information Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The protocol application which runs above the physical port. **Frame Relay** Read-only
Note: *The following fields, reflecting Network and User-Sides, appear according to the setting of the VC Signaling Procedure parameter. The NMS is capable of supporting either side alone or both sides (Network and User) concurrently. Only the supported side(s) will be displayed.*	
Network-Side	
N392 Error Threshold	**1..10** Read-only
N393 Monitored Events	**1..10** Read-only
T392 Link Integrity Polling Timer	**5..30** Read-only

Table 4-4. FR Interface VC Signaling Information Parameters (Cont.)

Parameter	Remarks
User-Side	
N391 Polling Cycle	**1..255** Read-only
N392 Polling Cycle	**1..10** Read-only
N393 Polling Cycle	**1..10** Read-only
T391 Link Integrity Polling Timer	**5..30** Read-only

Loopback Testing

➤ **To configure Data Port - FR interface loopback testing:**

1. In the LA-110 Node Draw, select the Data port, right-click and select **Configure > FR Interface > Loopback Test.**

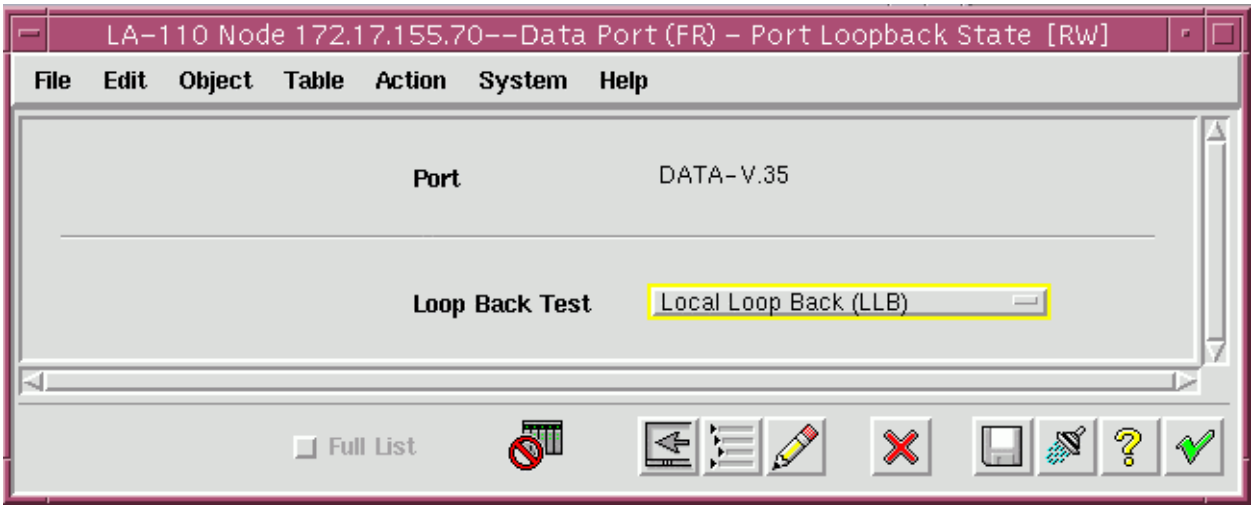


Figure 4-9. FR Interface Port Loopback State

2. Fill in the fields, as described in *Table 4-5*.
3. Click <**Save**> to save the changes.

Table 4-5. Data Port - FR Interface Loopback State Parameters

Parameter	Remarks
Port	The selected port Read-only
Loopback Test	Activates a loopback test on the specified port • **Local Loopback (LLB):** Can be used to check the source of a certain problem. Activates the local loopback on the local data port. Checks that the user's equipment receives its own signal while the loopback is connected. If it does, the problem is external. • **Remote Loopback (RLB):** Can be used to check the source of a certain problem. For example, if there is certain alarm on a port, and if after activating the RLB the alarm disappears, then the problem is external. • None: No Test.

AAL1 Stream Application Mode

In this application, the data stream at the selected data rate (n 64‘kbps) is transferred transparently. Therefore, the AAL1 stream mode supports any Layer 2 protocol and only one connection can be defined on the port.

Before you can begin configuring the Data Port - AAL1 Stream, you must first configure the Data port application.

➤ **To configure the Data port application as AAL1 Stream mode:**

1. In the LA-110 Node Draw, select the Data port, right-click and select **Configure > Data Port Application**.

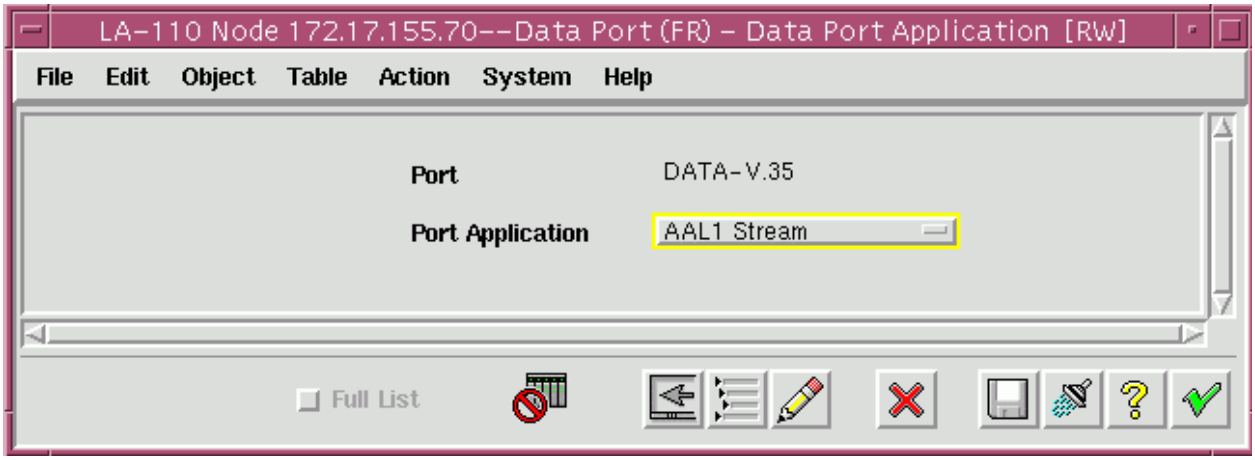


Figure 4-10. Data Port Application (AAL1 Stream Mode)

2. In the Port Application field, select **<AAL1 Stream>** to set the mode.

3. Click <**Save**> to save the changes.

   If the data application was changed, a confirmation message dialog appears: "Data Port application change requires device Reset. Operation will DELETE AAL1/FR Connections and RESET the Device. Do You Wish to Continue?" Click <**Yes**> to confirm.

Basic tasks for AAL1 Stream application mode include viewing and configuring:

- Interface information
- Interface parameters
- Loopback testing.

Interface Information

➤ **To view AAL1 Stream interface information:**

- In the LA-110 Node Draw, select the Data port, right-click and select **Configure > AAL1 Stream Interface > Interface Info.**

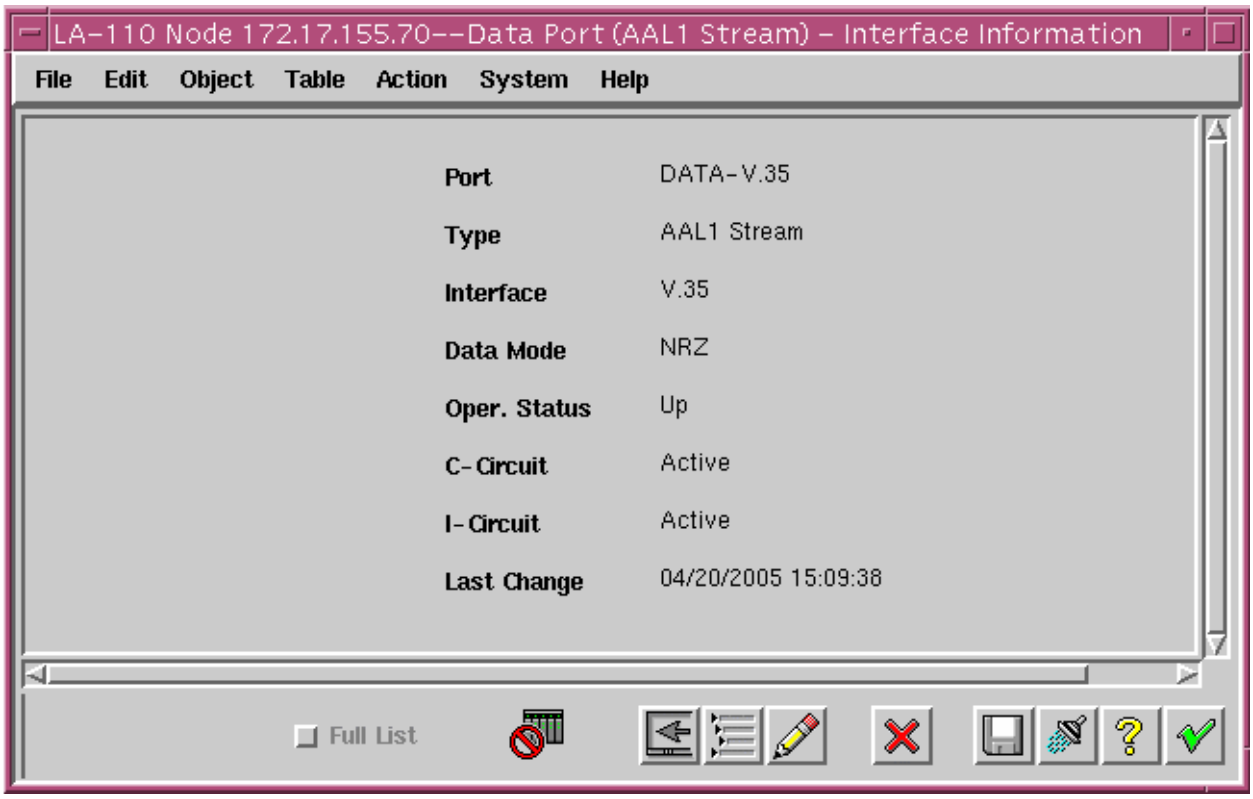


Figure 4-11. AAL1 Interface Information

Table 4-6. AAL1 Stream Interface Information Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The protocol application which runs above the physical port. **AAL1 Stream** Read-only
Interface	The interface type. **X.21, V.35, V.36** Read-only
Data Mode	The data mode. **NRZ1, NRZ** Read-only
Oper. Status	The actual link status. **Up, Down** Read-only
C-Circuit	**N/A Not Active, Active** Read-only
I-Circuit	**N/A, Not Active, Active** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Interface Parameters

➤ **To configure AAL1 Stream interface parameters:**

1. In the LA-110 Node Draw, select the Data port, right-click and select **Configure > AAL1 Stream Interface > Interface Parameters.**

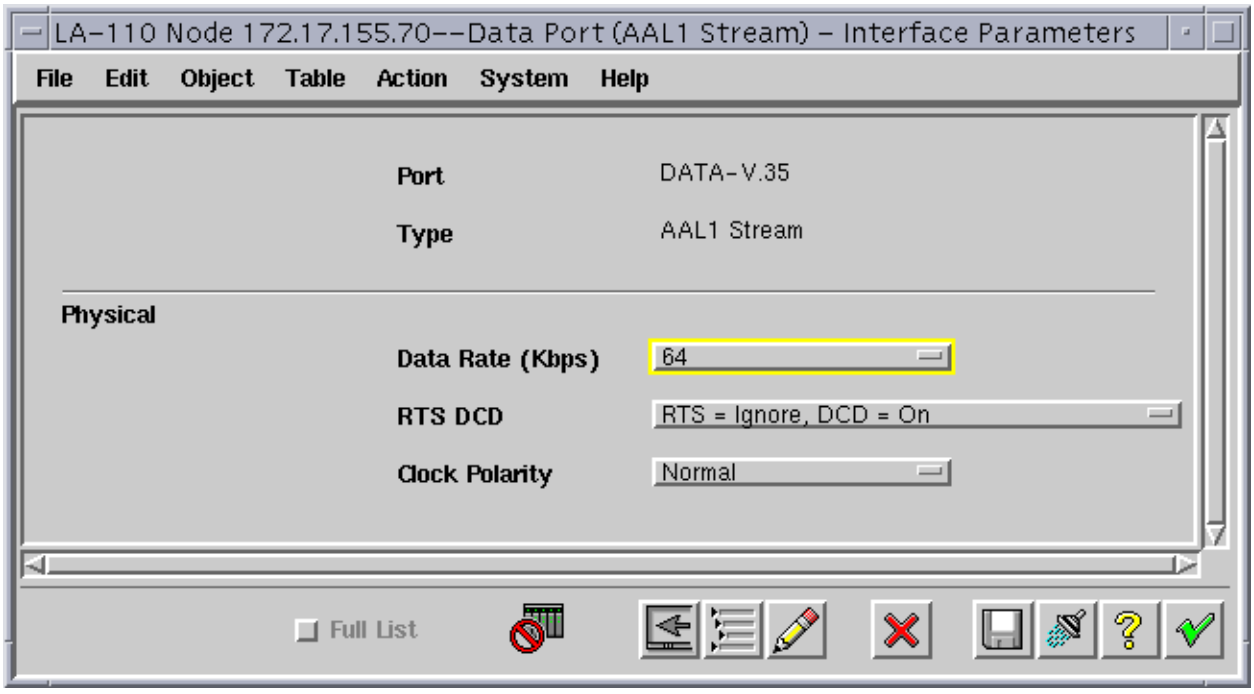


Figure 4-12. AAL1 Stream Interface Parameters

2. Fill in the fields, as described in *Table 4-7*.
3. Click <**Save**> to save the changes.

   If the data rate was changed, a confirmation message dialog appears: "Data Rate change requires device reset. Operation will RESET the Device. Do You Wish to Continue?" Click <**Yes**> to confirm.

Table 4-7. AAL1 Stream Interface Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The protocol application which runs above the physical port. **AAL1 Stream** Read-only
Physical	
Interface	The port interface type. **X.21, V.35, V.36** Read-only
Data Rate (kbps)	The operation rate of the port in kbps. **64, 128, 256...2048 Kbps (in intervals of 64 kbps)**

Table 4-7. AAL1 Stream Interface Parameters (Cont.)

Parameter	Remarks
RTS DCD	Indicates if the bits CtsCd (Clear-to-Send Carry-Detect) are being checked. In AMCD, CTS is also checked. You can select two options related to the flow control signals included in the data port interface: • Ignore the DCD and RTS signals: in this case, the data path to the far end is always open. • Obey the DCD and RTS signals: in this case, the data path to the far end opens only when the RTS signal received from the local terminal is asserted (the local terminal indicates that it has data to send), or the far end sends data (DCD output in the local data port is then asserted). When the physical interface is not x.21, the values are: **Off:** RTS=Ignore, DCD=Off, Ignore RTS DCD Off **Off:** RTS=Obey, DCD=Off, Obey RTS DCD Off **On:** RTS=Obey, DCD=On, Obey RTS DCD On **On:** RTS=Ignore, DCD=On, Ignore RTS DCD On When the interface is x.21, the list of values are: **Off:** C=Ignore, I=Off, Ignore RTS DCD Off **Off:** C=Obey, I=Off, Obey RTS DCD Off **On:** C=Obey, I=On, Obey RTS DCD On **On:** C=Ignore, I=On, Ignore RTS DCD On
Clock Polarity	Specifies the relative clock polarity, for compatibility with user-equipment interface characteristics • **Normal:** Clock falling edge occurs in the middle of the bit interval **Inverted:** Clock rising edge occurs in the middle of the bit interval

Loopback Testing

➤ **To configure Data Port - AAL1 Stream interface loopback testing:**

1. In the LA-110 Node Draw, select the Data port, right-click and select **Configure > AAL1 Stream Interface > Loopback Test.**

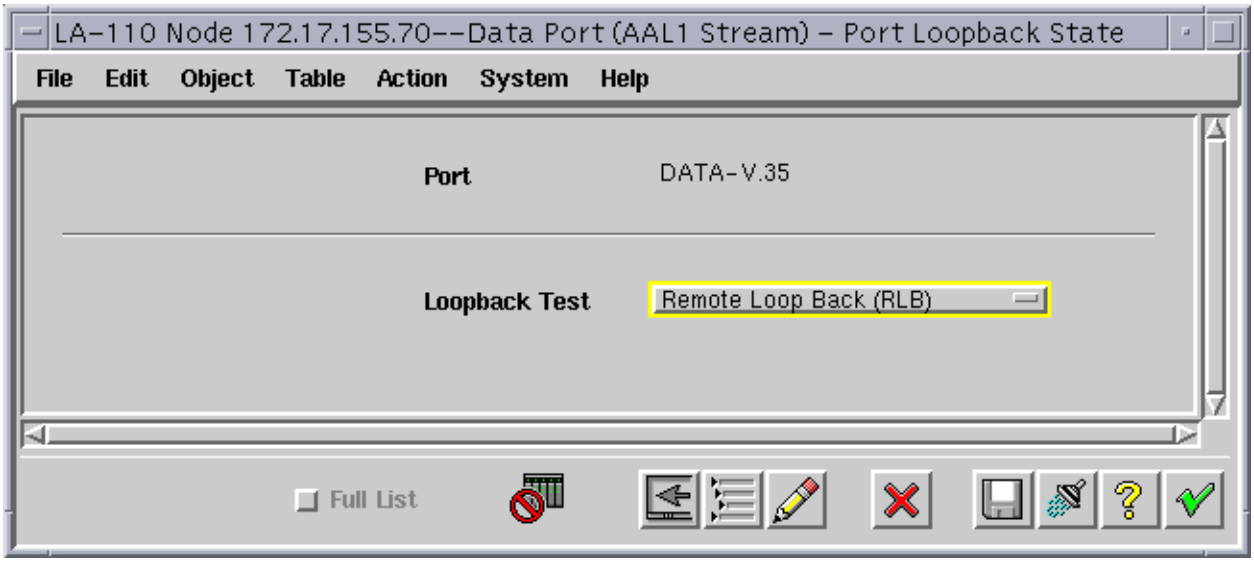


Figure 4-13. AAL1 Stream Interface Port Loopback State

2. Fill in the fields, as described in *Table 4-8*.
3. Click <**Save**> to save the changes.

Table 4-8. Data Port - AAL1 Stream Interface Loopback State Parameters

Parameter	Remarks
Port	The selected port Read-only
Loopback Test	Activates a loopback test on the specified port • **Local Loopback (LLB):** Can be used to check the source of a certain problem. Activates the local loopback on the local data port. Checks that the user's equipment receives its own signal while the loopback is connected. If it does, the problem is external. • **Remote Loopback (RLB):** Can be used to check the source of a certain problem. For example, if there is certain alarm on a port, and if after activating the RLB the alarm disappears, then the problem is external. • **None:** No Test.

4.6 LAN Port Configuration

LA-110 includes a 10/100BaseT Ethernet LAN port intended for direct connection to an Ethernet hub port, using a UTP cable wired point-to-point. The interface supports auto-negotiation. The user can configure the advertised data rate (10 or 100 Mbps) and operating mode (half-duplex or full-duplex). Alternatively, auto-negotiation can be disabled and the rate and operating mode can be specified directly.

Basic tasks include viewing and configuring:

- Interface parameters
- Port application
- Interface information.

Interface Parameters

➤ **To configure LAN port interface parameters:**

1. In the LA-110 Node Draw, select the LAN port, right-click and select **Configure > Interface Parameters.**

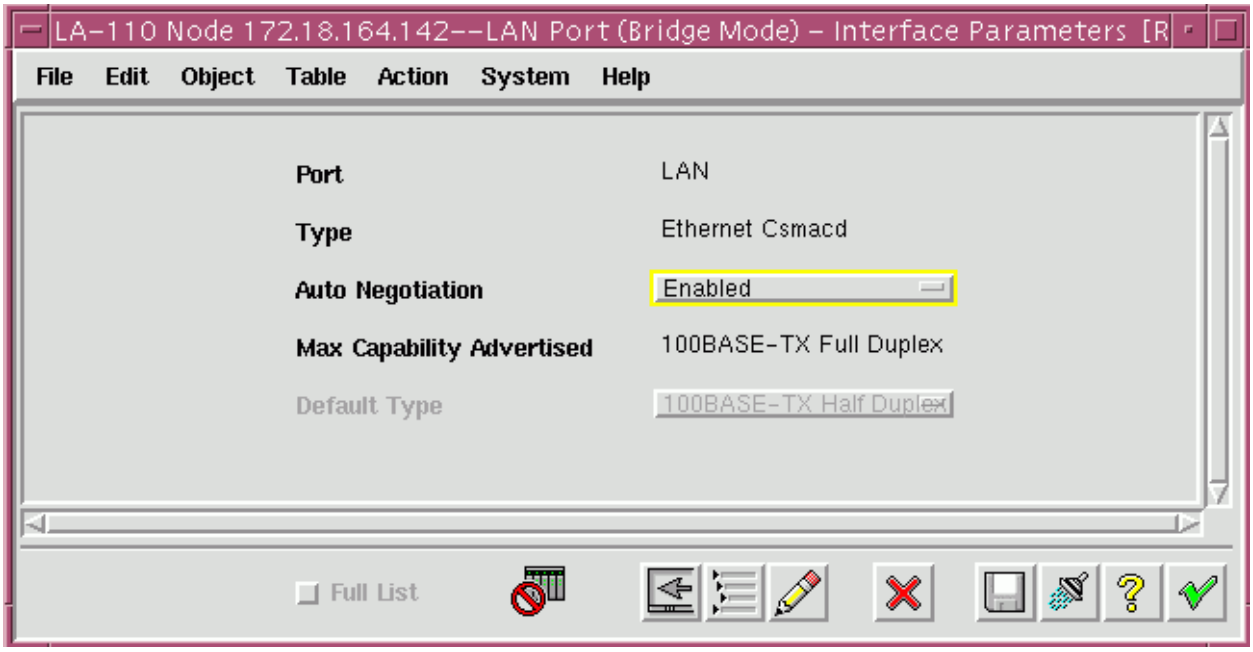


Figure 4-14. LAN Port Interface Parameters

2. Fill in the fields, as described in *Table 4-9*.
3. Click <**Save**> to save the changes.

   If the Default Type or Auto Negotiation were changed, a confirmation message dialog appears: "Ethernet port will restart. Do You Wish to Continue?" Click <**Yes**> to confirm.

Table 4-9. LAN Port Interface Parameters

Parameter	Remarks
Port	The selected port **LAN** Read-only
Type	The port type. **Ethernet Csmacd** Read-only
Auto Negotiation	The auto negotiation administrative status. Auto-negotiation is used to automatically select the mode providing the highest possible traffic handling capability by carrying out an automatic handshaking procedure that coordinates the LAN port operation with that of the other equipment connected to the LAN port. **Enabled, Disabled**
Max Capability Advertised	Select a specific operating mode and data rate. The selected values determine the LAN port operating mode in the following circumstances: • When auto-negotiation is disabled • When auto-negotiation is enabled, but the auto-negotiation process cannot be carried out, for example, because no operational equipment is connected to the LAN port **10BASE-T:** half duplex mode **10BASE-T**: full duplex mode **100BASE-TX:** half duplex mode **100BASE-TX:** full duplex mode. Read-only
Default Type	**10BASE-T:** half duplex mode **10BASE-T**: full duplex mode **100BASE-TX:** half duplex mode **100BASE-TX:** full duplex mode. Available only when the Auto Negotiation mode is disabled.

Port Application

The LA-110 has two possible port applications: Bridge and IP Router. Although, the two are supported by the device, only Bridge is supported by the current MD.

The device default setting is Bridge. However, if the device should happen to go up as Router, you can set it back to Bridge in the Port Application dialog.

➤ **To configure LAN port application:**

1. In the LA-110 Node Draw, select the LAN port, right-click and select **Configure > Port Application.**

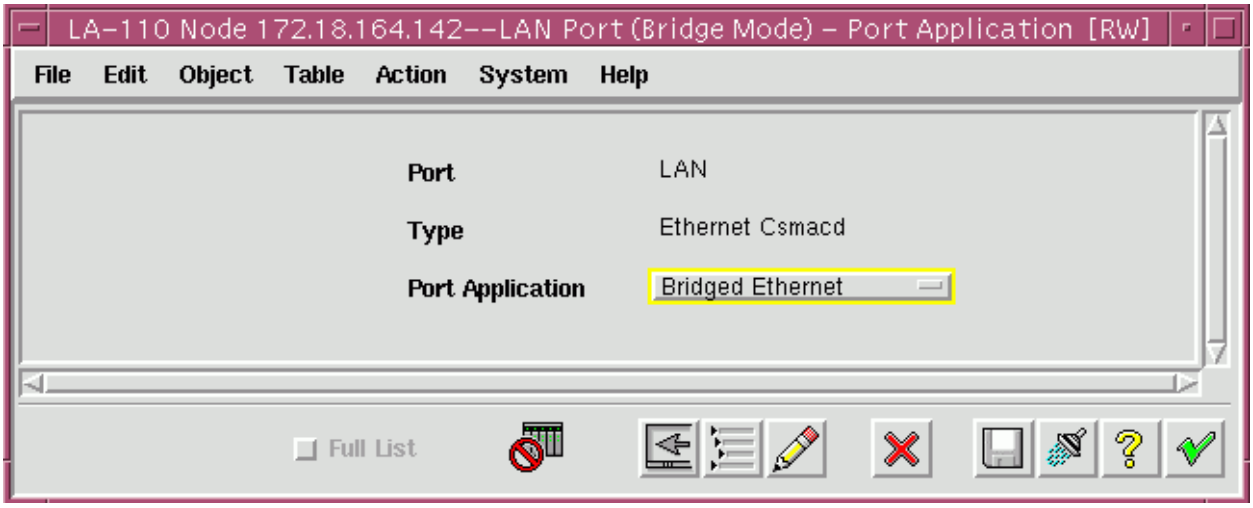


Figure 4-15. LAN Port Application

2. Fill in the fields, as described in *Table 4-10*.
3. Click <**Save**> to save the changes.

Table 4-10. LAN Port Application Parameters

Parameter	Remarks
Port	The selected port **LAN** Read-only
Type	The protocol application which runs above the physical port. **Ethernet Csmacd** Read-only
Port Application	**Bridged Ethernet**

Interface Information

➤ **To view LAN port interface information:**

- In the LA-110 Node Draw, select the LAN port, right-click and select **Configure > Interface Info.**

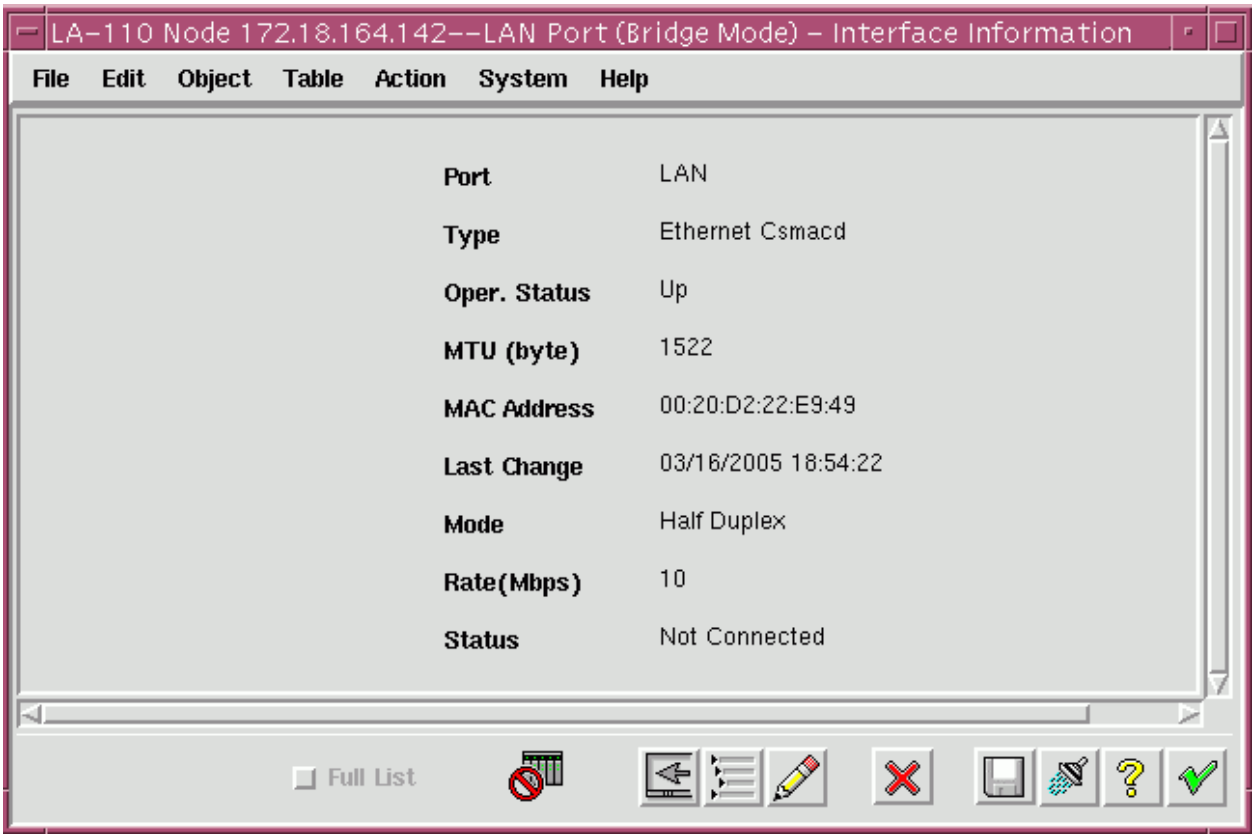


Figure 4-16. LAN Port Interface Information

Table 4-11. LAN Port Interface Information Parameters

Parameter	Remarks
Port	The selected port **LAN** Read-only
Type	Ethernet Csmacd Read-only
Oper. Status	The actual link status. **Up, Down** Read-only

Table 4-11. LAN Port Interface Information Parameters (Cont.)

Parameter	Remarks
MTU (byte)	The size of the largest packet which can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface **Integer** Read-only
MAC Address	The interface's MAC address at its protocol sub-layer. *MAC address format* Read-only
Last Change	This field indicates the time of the last change on the port. Read-only
Mode	The port mode of operation. **Full Duplex, Half Duplex** Read-only
Rate (Mbps)	The operation rate of the port. **10, 100 Mbps** Read-only
Status	The port status. **Connected, Not Connected** Read-only

Bridge Configuration

In the Navigator, you can view and modify LAN port Bridge parameters.

Basic tasks include viewing and configuring:

- Bridge parameters
- LAN table parameters
- VLAN table parameters
- VLAN for membership
- VLAN members
- Bridging table.

Bridge Parameters

In the User LAN Bridging application LA-110 provides a solution to connect local/remote LANs over an ATM network.

The LA-110 Bridge can operate in VLAN Aware and VLAN Unaware mode.

➤ **To configure Bridge parameters:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Unaware), right-click and select **Configure > Bridge Parameters.**

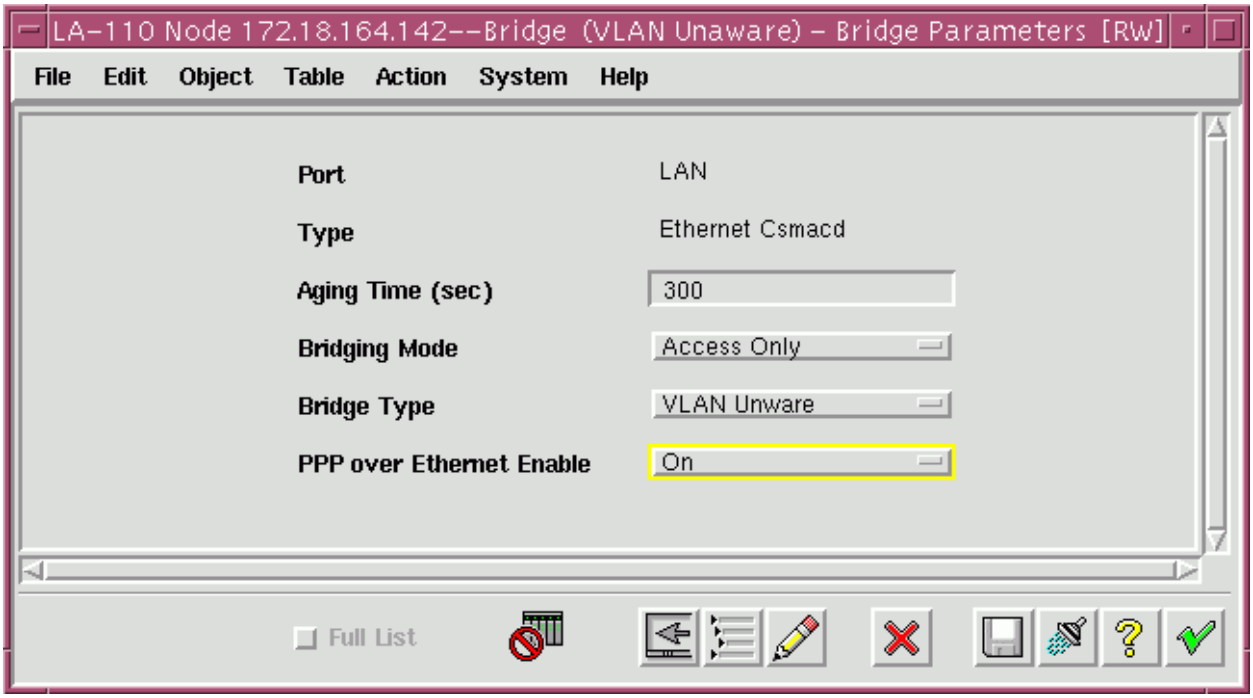


Figure 4-17. Bridge Port (VLAN Unaware) Parameters

2. Fill in the fields, as described in *Table 4-12*.
3. Click <**Save**> to save the changes.

   If the Bridge Type field was changed from VLAN Aware to VLAN Unaware, a confirmation message dialog appears: "Changing Bridge type will reset device and erase all VLAN configuration. Do You Wish to Continue?" Click <**Yes**> to confirm.

   If the Bridge Type field was changed from VLAN Unaware to VLAN Aware, a confirmation message dialog appears "Changing Bridge type will reset device and erase learned MAC addresses. Do You Wish to Continue?" Click <**Yes**> to confirm.

Table 4-12. Bridge Port Parameters

Parameter	Remarks
Port	The selected port **LAN** Read-only
Type	The protocol application which runs above the physical port. **Ethernet Csmacd** Read-only
Aging Time (sec)	The timeout period in seconds for aging out stored information. **300...604,800**
Bridging Mode	Bridging mode can be between the Ethernet port and the ATM port (where there is no bridging between VCs), or between both ports, and also between VCs. • **Access Only:** The traffic reaching the LAN port is forwarded through the WAN ports. • **Access and Switching:** The Bridge forwards LAN traffic addressed to WAN destinations that can be reached only through the WAN ports, and in addition enables forwarding of traffic among the WAN ports.
Bridge Type	The VLAN Mode. Upon Mode changing, all LAN VCCs will be deleted by the agent from all tables that include LAN VCCs **VLAN Unaware, VLAN Aware**
PPP over Ethernet Enable	Enables or disables transparent PPP over Ethernet bridge. When PPP over Ethernet is enabled, non PPP traffic is blocked by the bridge. **On, Off**

LAN Table

The LAN port can be configured to operate as a MAC Bridge. The MAC Bridge provides Layer 2 connectivity with transparent VLAN support for user-equipment. Each Bridge contains up to 16 ATM Bridge ports.

Note *This menu option is available only for VLAN Aware bridge ports.*

The LAN Table displays the learned MAC addresses and the added static entries.

Viewing LAN Table Parameters

➤ **To view LAN Table parameters:**

- In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > LAN Table** (or select **Configure > LAN Table > All**)

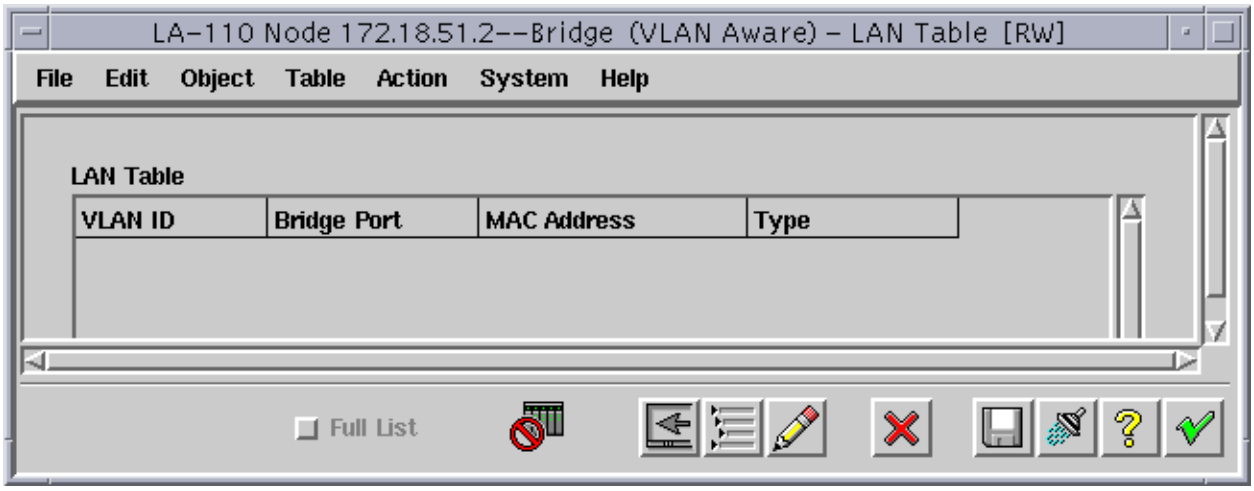


Figure 4-18. Bridge Port (VLAN Aware) LAN Table

Table 4-13. Bridge Port (VLAN Aware) LAN Table Parameters

Parameter	Remarks
VLAN ID	The Bridge port VLAN-ID. **1…4094** Read-only
Bridge Port	Bridge Port selection is possible only for a new entry. • ATM: ports 1…16 • Ethernet: port 9 Read-only
MAC Address	The MAC Address format. Read-only
Type	Provides information about all entries, learned dynamically or statically configured by management, in each filtering database. • **Learned:** Created by self-learning of the bridge • **Static:** user-created Read-only

Adding Static LAN Entries

You can add static MAC addresses to the bridging table of the LA-110 LAN port. You may define up to 32 static MAC addresses. If this number is exceeded, you must delete an existing MAC address before a new one can be added.

➤ **To add static LAN entries:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > LAN Table > Static.**

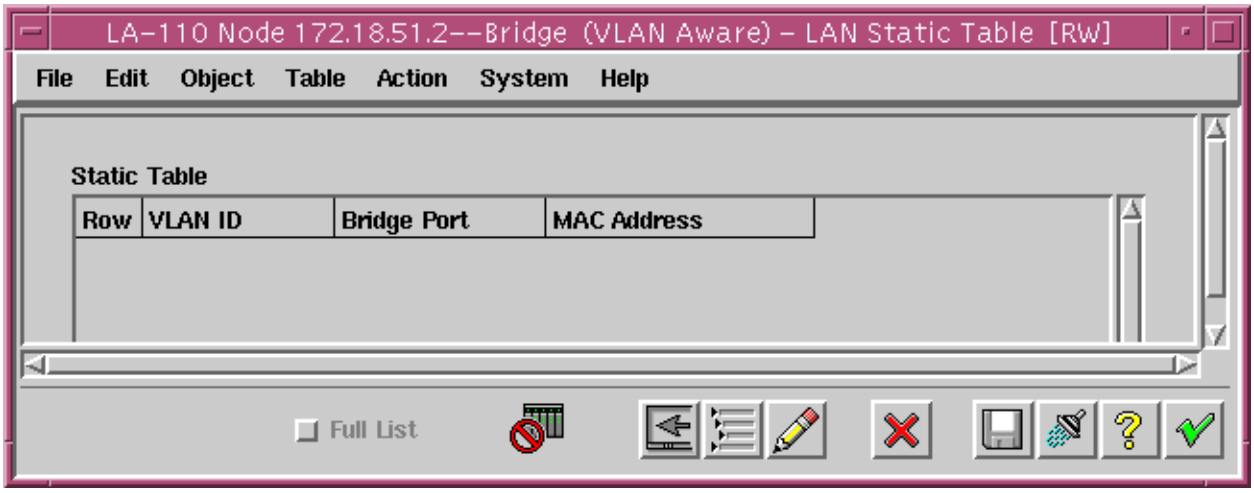

LA-110 Node 172.18.51.2--Bridge (VLAN Aware) - LAN Static Table [RW]
File Edit Object Table Action System Help
Static Table
Row VLAN ID Bridge Port MAC Address
Full List

Figure 4-19. Bridge Port (VLAN Aware) LAN Table – Static Parameters

2. Fill in the fields, as described in *Table 4-13*.

   If the number of static LAN entries added, exceeds the limit, the following message appears on the Status bar: "The number of Static LAN entries cannot exceed 32."Set won't be performed."

3. In the LAN Static Table dialog, select **Table > Add Row**.
4. In the Static Table, in the VLAN ID field, edit the VLAN ID.
5. In the Static Table, select the Bridge Port which will be a member in the VLAN.
6. In the MAC Address field, enter the MAC address.
7. Click <**Save**> to save the changes.

Removing All LAN Table Entries

➤ **To remove all LAN Table entries:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > LAN Table > Remove All Entries.**

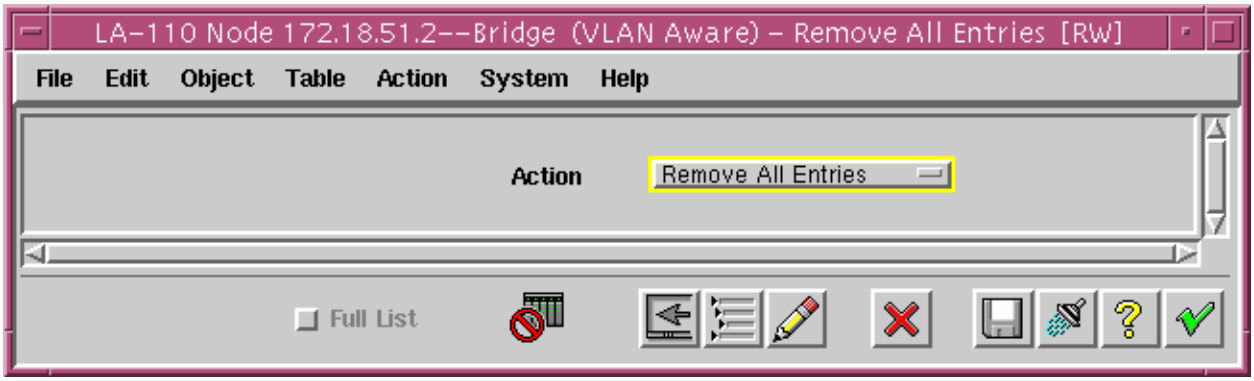

LA-110 Node 172.18.51.2--Bridge (VLAN Aware) - Remove All Entries [RW]
File Edit Object Table Action System Help
Action
Remove All Entries
Full List

Figure 4-20. Bridge Port (VLAN Aware) LAN Table > Remove All Entries

2. In the Action field, select <**Remove All Entries**>.

   A confirmation message dialog appears: "Erasing LAN Table. Information will be lost."

3. Click <**Yes**> to confirm.

   The entire LAN Table is erased.

VLAN Table

VLAN can be used to provide separation between traffic from different sources sharing the same physical transmission facilities, and to provide information on the relative priority the assigned to each frame. The characteristics and use of virtual LANs (VLANs) and of the MAC bridges capable of handling tagged frames are defined in IEEE Standard 802.1Q.

Note *This menu option is available only for VLAN Aware bridge ports.*

➤ **To configure VLAN Table parameters:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > VLAN Table.**

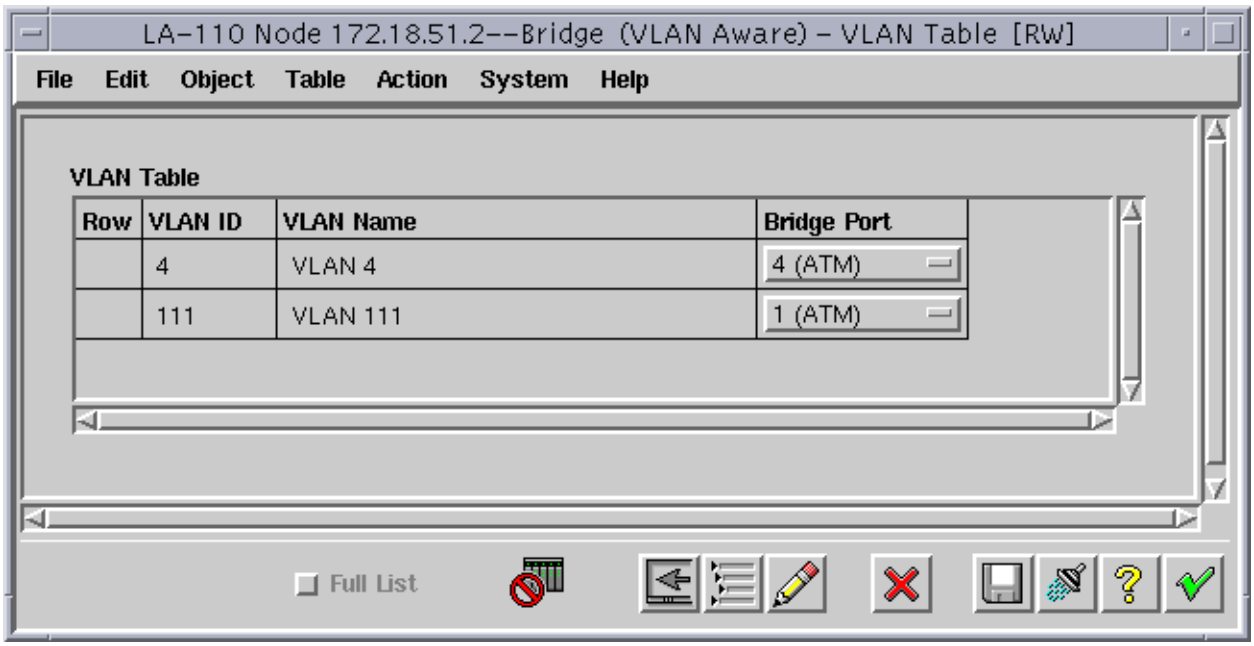

LA-110 Node 172.18.51.2--Bridge (VLAN Aware) - VLAN Table [RW]
File Edit Object Table Action System Help
VLAN Table
Row VLAN ID VLAN Name Bridge Port
4 VLAN 4 4 (ATM)
111 VLAN 111 1 (ATM)
Full List

Figure 4-21. Bridge Port (VLAN Aware) VLAN Table

2. Fill in the fields, as described in *Table 4-14*.
3. Click <**Save**> to save the changes.

   When Bridge mode is VLAN Aware, the procedure of VLAN creation is as follows:

   1. In the VLAN Table dialog, select **Table > Add Row**.
   2. In the VLAN Table, in the VLAN ID field, edit the VLAN ID.
   3. In the VLAN Table, select the Bridge Port which will be a member in the VLAN
   4. In the VLAN Name field, edit the VLAN Name. If the VLAN Name is not edited, the VLAN will be given a default name.

5. Click <**Save**> to save the changes.

To add/change Bridge port members, refer to the following section, "Selecting VLAN for Membership".

Table 4-14. Bridge Port (VLAN Aware) VLAN Table Parameters

Parameter	Remarks
VLAN ID	The VLAN-ID or other identifier referring to this VLAN. **1…4094**
VLAN Name	An administratively assigned string, which may be used to identify the VLAN. **String of up to eight characters**
Bridge Port	Bridge Port selection is possible only for a new entry. **ATM: ports 1…16** **Ethernet: port 9**

Selecting VLAN for Membership

Note *This menu option is disabled if no VLAN is defined.*

➤ **To configure VLAN for membership parameters:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > Select VLAN for Members.**

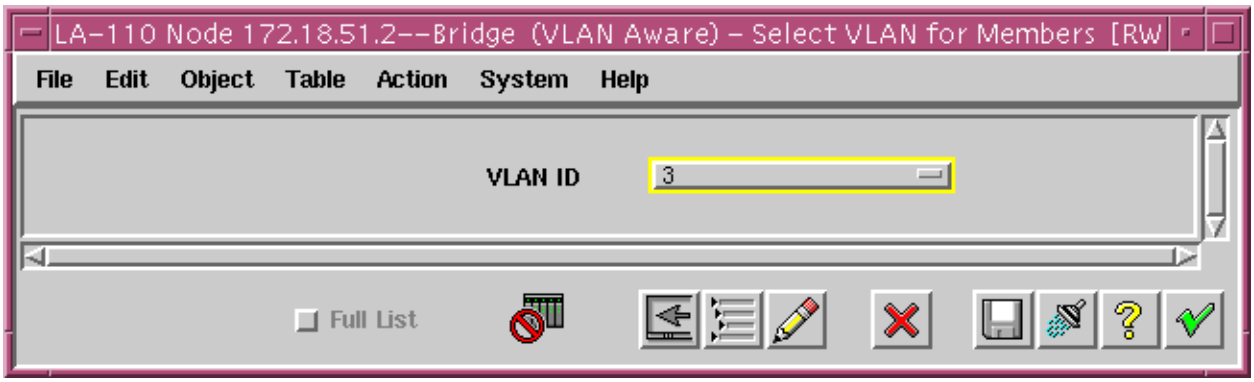


Figure 4-22. Bridge Port (VLAN Aware) Select VLAN for Membership

2. Select the VLAN ID for which you would like to configure members, as described in *Table 4-15*.
3. Click <**Save**> to save the changes.

   The NMS checks if the VLAN ID exists. If it does, the VLAN Members for the Selected VLAN ID form opens. If the VLAN ID does not exist, then an error message appears.

   Now it is possible to add or remove members from this VLAN.

Table 4-15. Bridge Port (VLAN Aware) Select VLAN for Membership Parameters

Parameter	Remarks
VLAN ID	The VLAN-ID or other identifier referring to this VLAN. **1…4094** (of the existing VLANs) The default is the last selected VLAN.

Note *In order to open the VLAN Members window, the VLAN ID field has to be changed, otherwise the form will not be aware of any change and nothing will happen. Therefore, whenever the dialog is opened with the value of the desired VLAN ID, you can simply open the VLAN Members window directly.*

VLAN Members

Note *This menu option is disabled if no VLAN is defined.*

In the VLAN Members window, you can add or remove members from a selected VLAN.

The VLAN ID that will be opened, will be the one that is configured in the Select VLAN for Members window

➤ **To configure VLAN members:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > VLAN Members.**

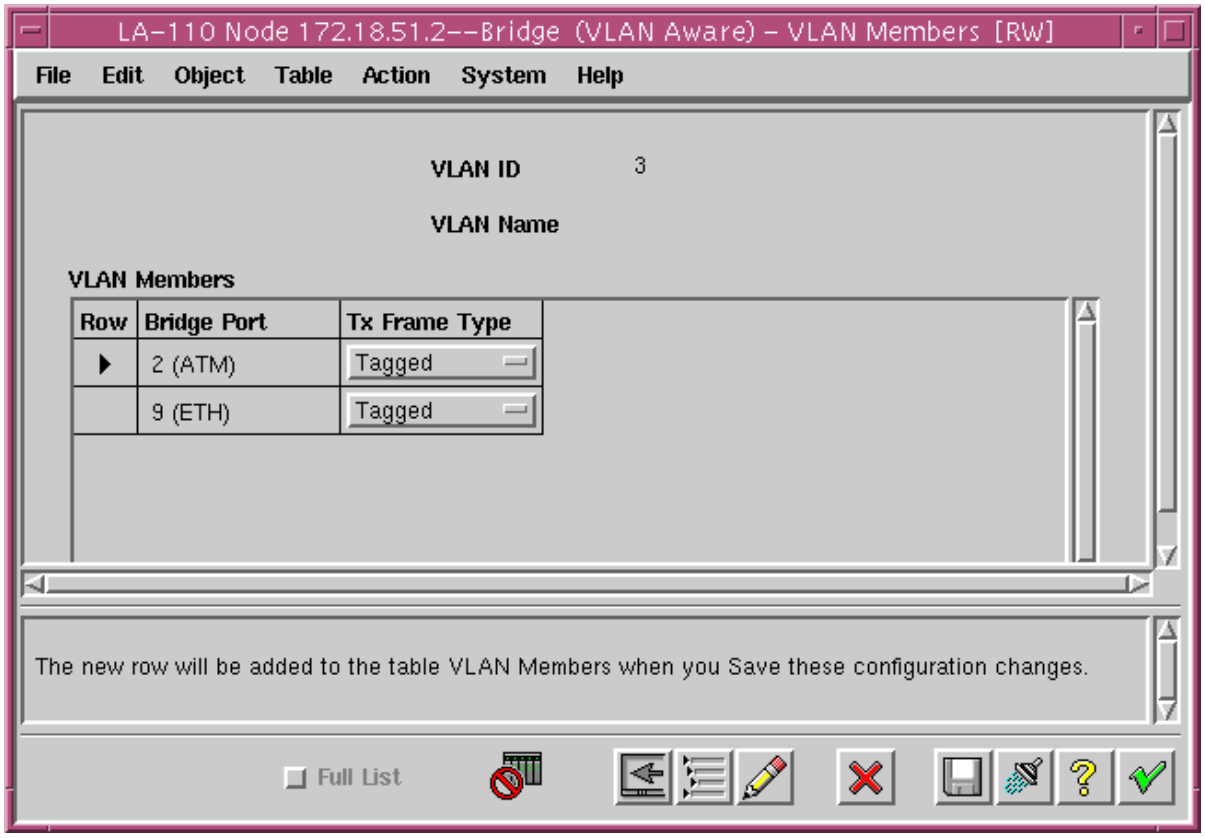


Figure 4-23. Bridge Port (VLAN Aware) VLAN Members

2. Fill in the fields, as described in *Table 4-16*.

   The maximum number of VLANs members in all VLANs is 100. In LA-110, whenever you add a VLAN, you also assign a member in the same operation, where the maximum number of allowed VLANs is 100. However, if more then one member is assigned to a VLAN, the number of maximum VLANs decreases accordingly.

3. Click <**Save**> to save the changes.

Table 4-16. Bridge Port (VLAN Aware) VLAN Members Parameters

Parameter	Remarks
VLAN ID	The VLAN-ID or other identifier referring to this VLAN. **1…4094** Read-only
VLAN Name	The VLAN user-defined or default name. Read-only
Bridge Port	The Bridge Ports that currently exist. **ATM: ports 1…16** **Ethernet: port 9** Read-only
Tx Frame Type	The transmitted frame type of the VLAN member. **Untagged, Tagged** (default) Read-only

Bridging Table

Note *This menu option is enable only for VLAN Unaware bridges.*

➤ **To view Bridging Table parameters:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > Bridging Table > View.**

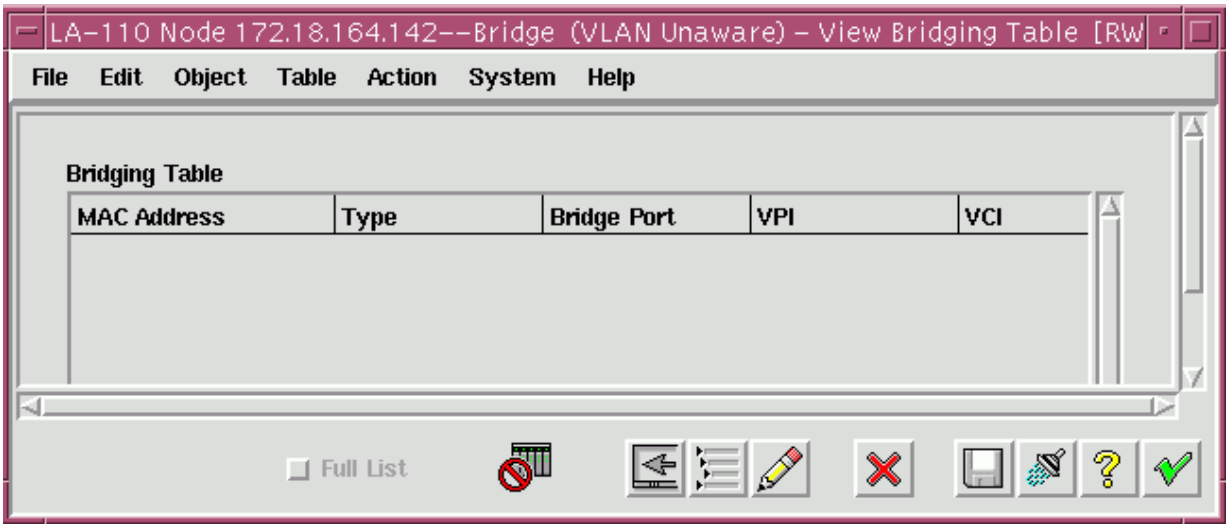


Figure 4-24. Bridge Port (VLAN Unaware) View Bridging Table

2. View the fields, as described in *Table 4-17*.

Table 4-17. Bridge Port (VLAN Unaware) View Bridging Table Parameters

Parameter	Remarks
MAC Address	A unicast MAC address for which the device has forwarding and/or filtering information. **Format: 00-00-00-00** Read-only
Type	The type learned dynamically or statically, configured by management, in each Filtering Database. **Learned, Static** Read-only
Bridge Port	The Bridge Ports that currently exist. **1…16 ATM, 9 Ethernet** Read-only
VPI	The VPI value. **0..31** Read-only
VCI	The VCI value. **0..255** Read-only

➤ **To edit Bridging Table parameters:**

1. In the LA-110 Navigator, select the Bridge port (VLAN Aware), right-click and select **Configure > Bridging Table > Edit.**

   The Bridging Table opens, displaying editable fields.

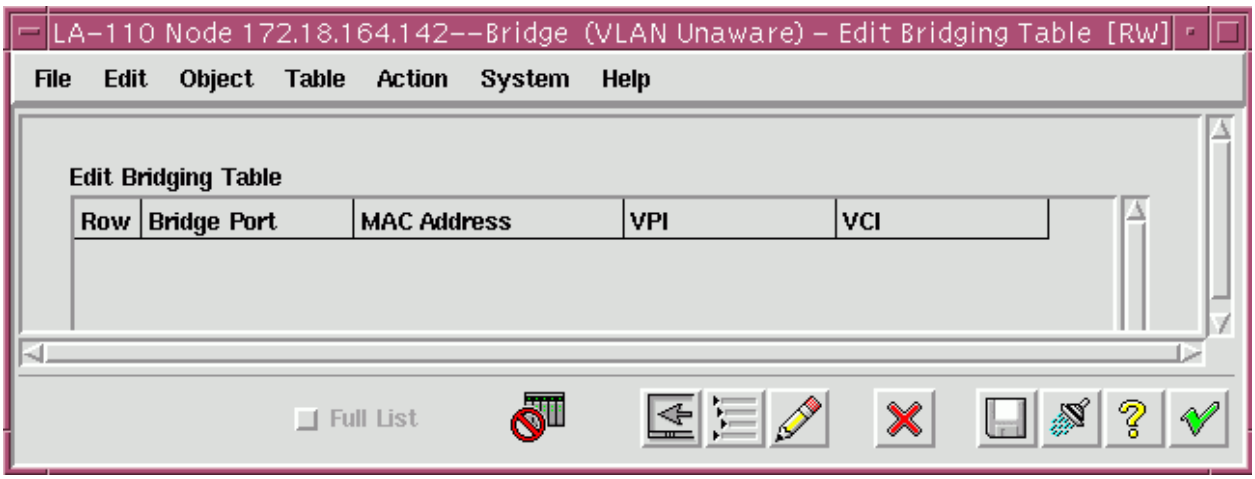


Figure 4-25. Bridge Port (VLAN Unaware) Edit Bridging Table

2. Fill in the fields, as described in *Table 4-17*.
3. Click <**Save**> to save the changes.

Bridge Port Configuration

LA-110 supports up to 16 ATM Bridge Ports and one Ethernet Bridge Port.

The Ethernet Bridge Port is automatically created upon the setting of the LAN port to work in Bridge mode (as opposed to Router mode).

In the Navigator, you can add new Bridge ports.

Basic tasks include:

- Adding Bridge ports
- Deleting Bridge ports
- Configuring Bridge port parameters

LA-110 MD supports the following modes for bridge ports: VLAN aware and VLAN unaware.

Adding Bridge Ports

In the LA-110 Navigator, you can add new ATM Bridge ports for the LAN port, in Bridge – VLAN Aware mode.

Note *A maximum of 17 Bridge ports can be added. One Ethernet Bridge port always exists and cannot be removed or added. 16 ATM Bridge Ports can be created or removed at any time.*

➤ **To add a new bridge port:**

1. In the LA-110 Navigator, select the LAN (Bridge) port (VLAN Aware), right-click and select **Add Component > Bridge Port > Add Bridge Port.**

   The Add Bridge Port form opens.

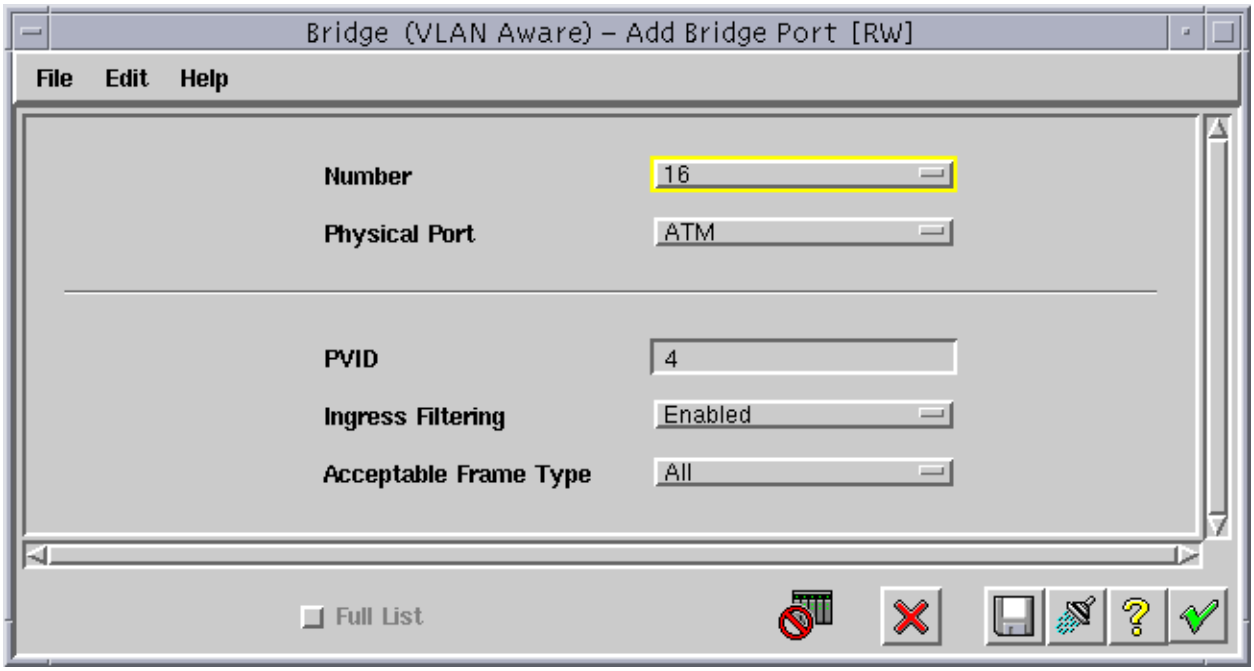


Figure 4-26. Add Bridge Ports (VLAN Aware)

2. Fill in the fields, as described in *Table 4-18*.
3. Click <**Save**> to save the changes.

Table 4-18. Add Bridge Ports (VLAN Aware) Parameters

Parameter	Remarks
Number	The interface number. **1…16** The NMS will NOT display Bridge Ports that currently exist for this Bridge.
Physical Port	The physical port. **ATM** The NMS will NOT display a value when all the possible Bridge Ports of this Type (**Physical Port**) currently exist. The default value is the first selectable value (according to the mentioned order).
PVID	The VLAN ID assigned to untagged frames or Priority-Tagged frames received on this port **1 (default)...4094**
Ingress Filtering	Determines whether incoming frames are discarded or accepted by the port. **Enable:** enables ingress filtering and the device discards incoming frames for VLANs which do not include this Port in its Member set **Disable:** disables ingress filtering, the port accepts all incoming frames.
Acceptable Frame Type	Determines whether untagged or Priority-tagged frame are received or discarded by the port. **All:** untagged frames or Priority-tagged frames received on this port are accepted and assigned to the PVID for this port. **Only VLAN Tagged:** the device discards untagged frames or Priority-tagged frames received on this port.

Deleting Bridge Ports

➤ **To delete a bridge port:**

- In the LA-110 Navigator, select a Bridge port object (VLAN Aware), and on the **Object** menu, click <**Delete>**.

  The selected Bridge object is deleted.

Configuring Bridge Port Parameters

➤ **To configure bridge port parameters:**

1. In the LA-110 Navigator, select a Bridge port object (VLAN Unaware), right-click and select **Configure > Parameters**.

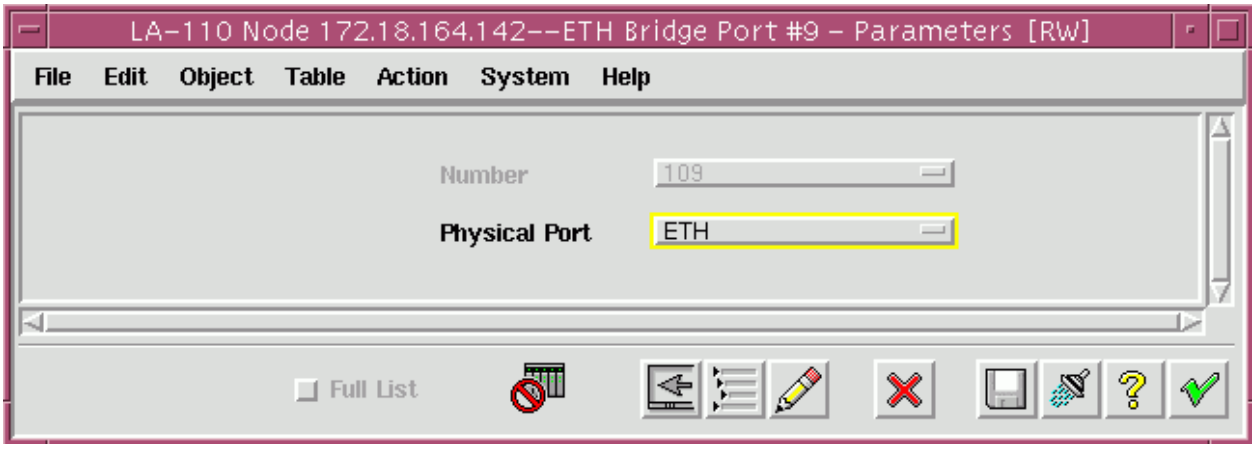


Figure 4-27. Ethernet Bridge Port Parameters

2. In the Physical Port field, select the physical port (ETH or ATM).
3. Click <**Save**> to save the changes.

4.7 SHDSL Port Configuration

LA-110 has one WAN (uplink) port, used to connect to the ATM network (this port is often referred to as an uplink port). Although the LA-110 uplink can come in several forms, in the current MD version, the WAN port will be always a 2-wire SHDSL interface in accordance with ITU-T Rec. G.991.2. The ATM network interface provides an ATM user-network interface (UNI) per ATM User-Network Interface (UNI) Specification (Version 3.1).

The interface supports the following ATM adaptation layers:

- **AAL1:** used for transparent transport of serial data streams, and for circuit emulation services (CES)
- **AAL2:** used to provide ATM Forum Loop Emulation Services (LES), which support PSTN and ISDN BRI and PRI access not supported
- **AAL5:** used for packet traffic (Frame Relay, Ethernet, IP).

The network port supports a wide range of ATM service categories (Classes of Service–CoS in ITU-T terminology): CBR, VBR, UBR and UBR+. LA-110 supports per-connection user-configurable traffic shaping and traffic contract enforcing, for improved QoS and efficient utilization of the ATM uplink bandwidth.

The layers of the SHDSL port include physical and ATM.

Basic tasks include:

- Configuring the SHDSL port physical layer
- Configuring the SHDSL port ATM layer.

SHDSL Port - Physical Layer

Basic tasks include viewing and configuring:

- Interface information
- Parameters
- Status.

Interface Information

➤ **To view SHDSL port physical layer interface information:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Configure > Physical Layer > Interface Info.**

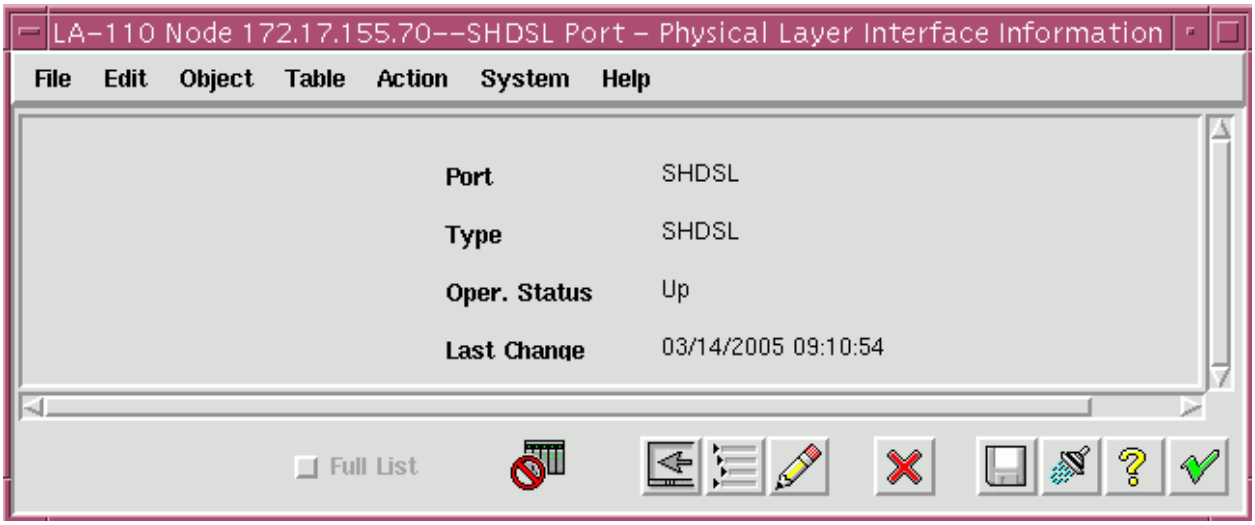


Figure 4-28. SHDSL Port – Physical Layer Interface Information

Table 4-19. SHDSL Port – Physical Layer Interface Information Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The protocol application which runs above the physical port. **SHDSL** Read-only
Oper. Status	The actual link status. **Up, Down** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Physical Parameters

➤ **To configure SHDSL port physical layer parameters:**

1. In the LA-110 Node Draw, select the SHDSL port, right-click and select **Configure > Physical Layer > Parameters.**

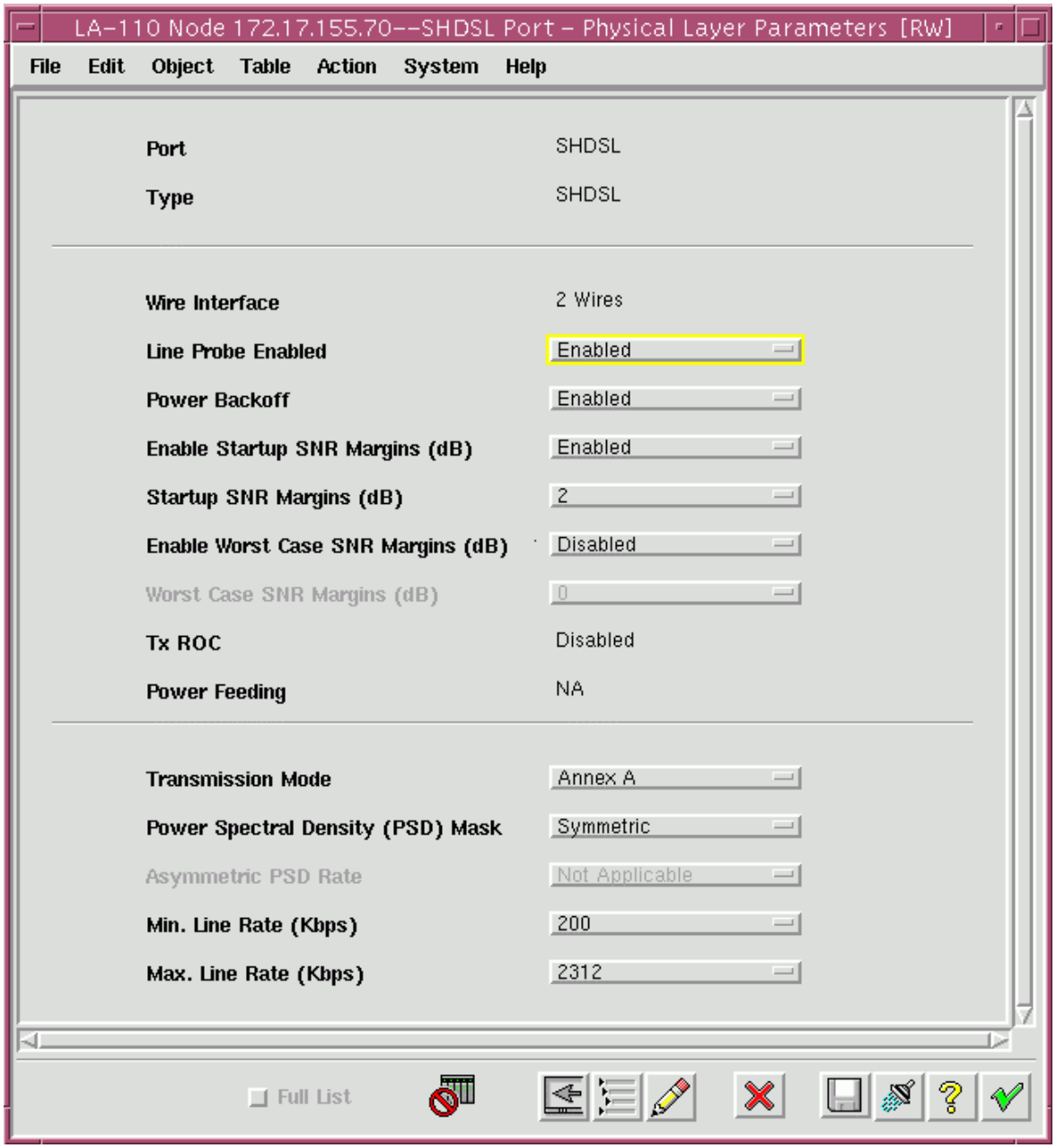


Figure 4-29. SHDSL Port – Physical Layer Parameters

2. Fill in the fields, as described in *Table 4-20*.
3. Click <**Save**> to save the changes.

Note *Changing the uplink physical layer parameters may cause a temporary disconnection of management for a few seconds, until the SHDSL port is synchronized with the new parameters.*

Table 4-20. SHDSL Port – Physical Layer Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The protocol application which runs above the physical port. **SHDSL** Read-only
Wire Interface	Displays the two-wire or optional four-wire operation for SHDSL Lines. **Two Wires, Four Wires** Read-only
Line Probe Enabled	Enables/disables support for Line Probe of the units in a SHDSL line. When Line Probe is enabled, the system performs Line Probing to find the best possible rate. If Line probe is disabled, the rate adaptation phase is skipped to shorten set up time. **Enabled, Disabled** *Disabled when Wire Interface = Four wires*
Power Backoff	Configures the receiver at the associated segment endpoint to enable/disable power backoff mode. **Enabled, Disabled**
When Wire Interface = Two Wires, and Line probe is enabled, at least one SNR margin must be enabled. (In this case, by default, Startup SNR Margin is enabled = 2.)	
Enable Startup SNR Margins (dB)	Determines the relevance of the Startup SNR Margins (dB) field. **Enabled, Disabled**
Startup SNR Margins (dB)	Specifies the downstream current condition target SNR margin for a SHDSL line. The SNR margin is the difference between the desired SNR and the actual SNR. Target SNR margin is the desired SNR margin for a unit. **0..10** *Disabled when "Line Probe Enabled" is disabled*
Enable Worst Case SNR Margins (dB)	Indicates whether a target SNR margin is enabled or disabled. **Enabled, Disabled**
Worst Case SNR Margins (dB)	Specifies the downstream worst case target SNR margin for a SHDSL line. The SNR margin is the difference between the desired SNR and the actual SNR. Target SNR margin is the desired SNR margin for a unit **0..10** *Disabled when "Line Probe Enabled" is disabled*

Table 4-20. SHDSL Port – Physical Layer Parameters (Cont.)

Parameter	Remarks
Tx EOC	Enables/disables support for remote management of the units in a SHDSL line from the STU-R via the EOC. **Enabled, Disabled** Read-only
Power Feeding	Enables/disables support for optional power feeding in a SHDSL line. No Power (N/A) Read-only
Transmission Mode	Specifies the regional setting for the SHDSL line. **Annex A, Annex B**
Power Spectral Density (PSD) Mask	Configures use of symmetric/asymmetric PSD (Power Spectral Density) Mask for the associated SHDSL Line. Support for symmetric PSD is mandatory for all supported data rates. Support for asymmetric PSD is optional. **Symmetric, Asymmetric**
Asymmetric PSD Rate	The asymmetric PSD rate. **Not Applicable, Asymmetric** The Asymmetric PSD Line Rates: The PSD Mask (Globespan) Asymmetric R1 for Annex A: **776, 784**; for Annex B: **2,312** The PSD Mask (Globespan) Asymmetric R2 for Annex A: **1544, 1,552**; for Annex B: **2,056** *Enabled only when PSD = Asymmetric*
Min. Line Rate (Kbps)	Configures the minimum transmission rate for the associated SHDSL Line in bits-per-second (bps). If the minimum line rate equals the maximum line rate, the line rate is considered 'fixed'. If the minimum line rate is less than the maximum line rate, the line rate is considered 'rate-adaptive'. Minimum Line Rates for Symmetric PSD: For Two Wire: **200** For Four Wires: **400**
Max. Line Rate (Kbps)	Configures the maximum transmission rate for the associated SHDSL Line in bits-per-second (bps). If the minimum line rate equals the maximum line rate (hdsl2ShdslSpanMaxLineRate), the line rate is considered 'fixed'. If the minimum line rate is less than the maximum line rate, the line rate is considered 'rate-adaptive'. Maximum Line Rates for Symmetric PSD: For Two Wire: **2,312** For Four Wires: **4,624** *Max. Line Rate is greater than Min. Rate when Line Probe is enabled. Equal to Min. rate when Line Probe is disabled*

Note *Changing line rate values may cause disconnection of MNG connection.*

Status

The Physical Layer Status dialog displays the current status of the SHDSL port.

➤ **To view SHDSL port physical layer status:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Configure > Physical Layer > Status.**

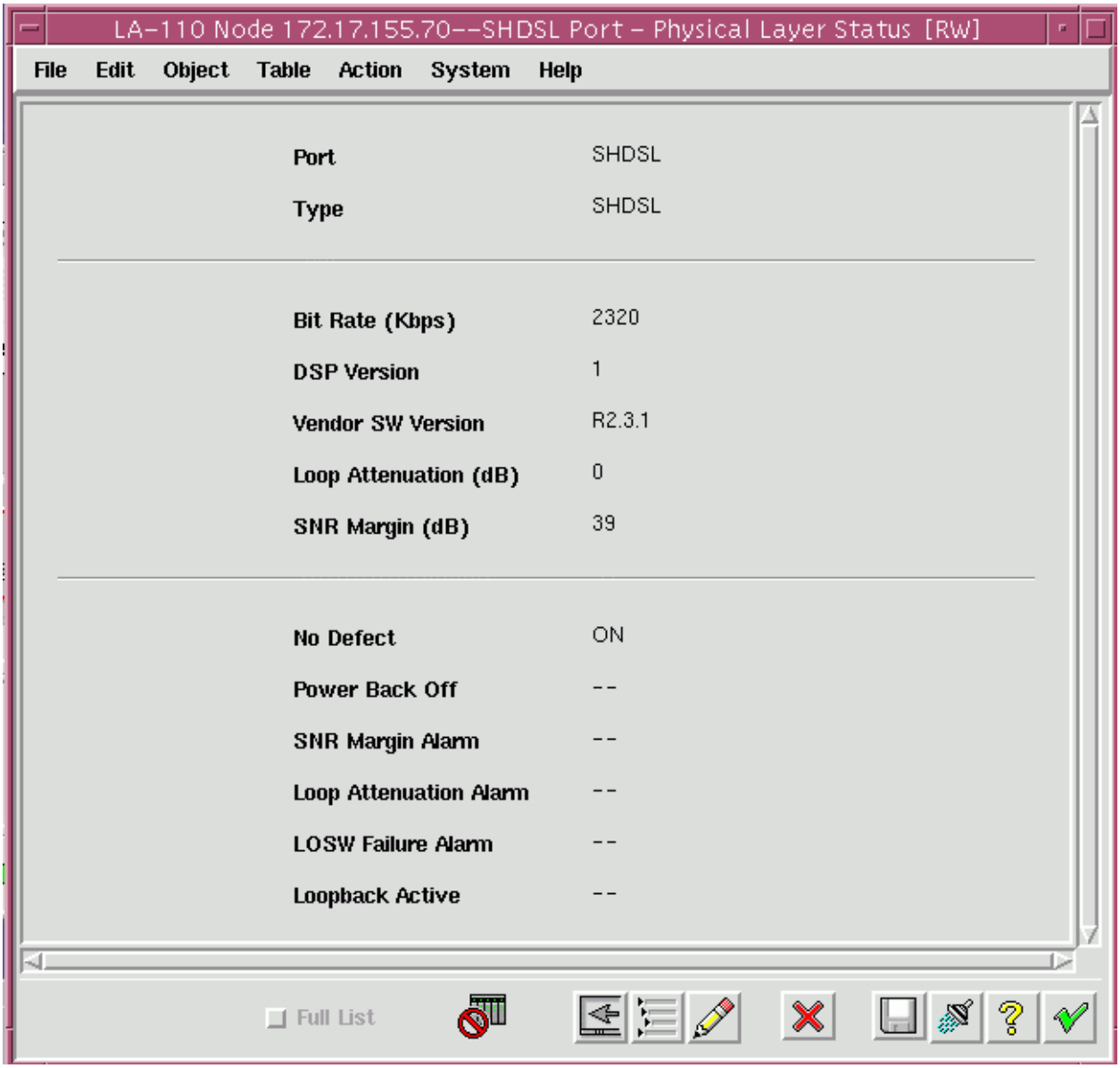


Figure 4-30. SHDSL Port – Physical Layer Status

Table 4-21. SHDSL Port – Physical Layer Status Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The protocol application which runs above the physical port. **SHDSL** Read-only
Bit Rate	An estimate of the interface's current bandwidth in bits per second. Read-only
DSP Version	The version of the SHDSL standard implemented as reported in an Inventory Response message. Read-only
Vendor SW Version	Vendor software version as reported in an Inventory Response message. Read-only
Loop Attenuation (dB)	The current loop attenuation for this endpoint as reported in a Network or Customer Side Performance Status message. Read-only
SNR Margin (dB)	The current SNR margin for this endpoint as reported in a Status Response/SNR message. Read-only
No Defect	The current state of the endpoint. **On, Off** Read-only
Power Back Off	The current state of the endpoint. **On, Off** Read-only
SNR Margin Alarms	Displays the signal/noise margin in dB, measured at the instant the command has been received by LA-110. **On, Off** Read-only
Loop Attenuation Alarm	Displays the loop attenuation threshold in dB, measured at the instant the command has been received by LA-110. **On, Off** Read-only

Table 4-21. SHDSL Port – Physical Layer Status Parameters (Cont.)

Parameter	Remarks
LOSW Failure Alarm	Displays the number of seconds with loss of sync word events accumulated for each link. **On, Off** Read-only
Loopback Active	The current state of the endpoint. **On, Off** Read-only

SHDSL Port - ATM Layer

Basic tasks include viewing and configuring:

- Interface information
- Parameters
- VCL Table.

Interface Information

➤ **To view SHDSL port ATM layer interface information:**

1. In the LA-110 Node Draw, select the SHDSL port, right-click and select **Configure > ATM Layer > Interface Info.**

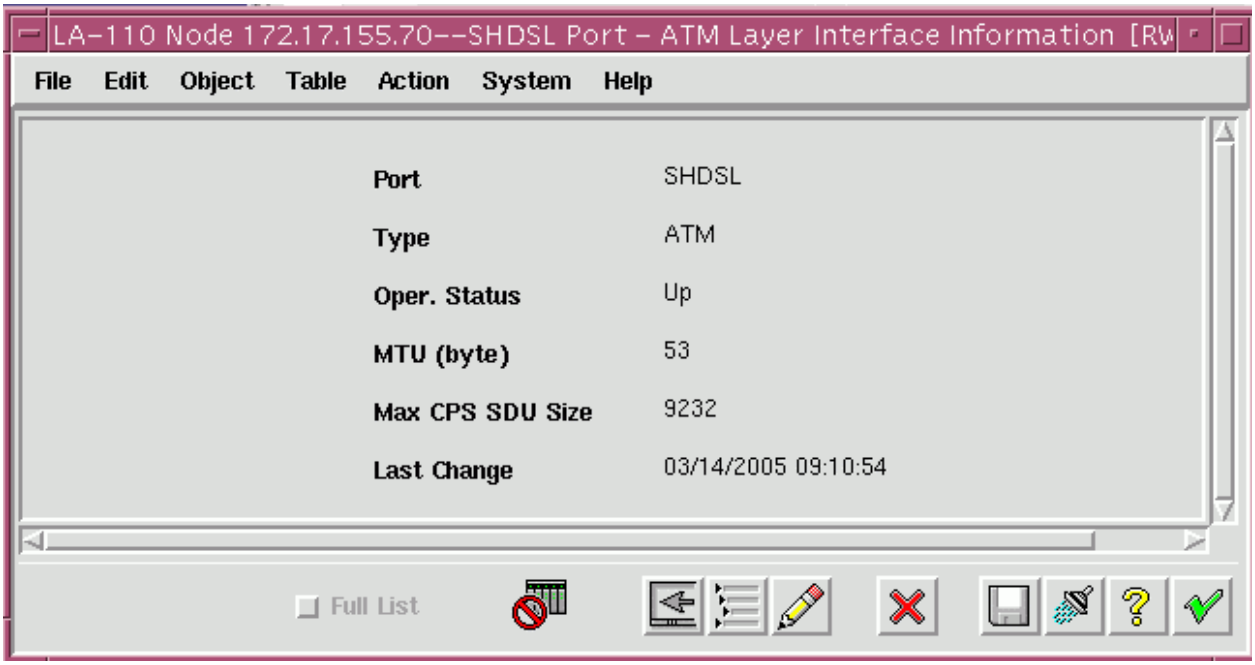


Figure 4-31. SHDSL Port – ATM Layer Interface Information

Table 4-22. SHDSL Port – ATM Layer Interface Information Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The protocol application which runs above the physical port. **ATM** Read-only
Oper. Status	The actual link status. **Up, Down** Read-only
MTU (byte)	The size of the largest packet which can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface **Integer** Read-only
Max CPS SDU Size	The maximum AAL5 CPCS SDU (service data unit) size in octets that is supported on the transmit direction of this VCC. Read-only *Relevant only when the local VCL end-point is also the VCC end-point, and AAL5 is in use.* *Available only for AAL Type = AAL5*
Last Change	This field indicates the time of the last change on the port. Read-only

Parameters

➤ **To configure SHDSL port ATM layer parameters:**

1. In the LA-110 Node Draw, select the SHDSL port, right-click and select **Configure > ATM Layer > Parameters.**

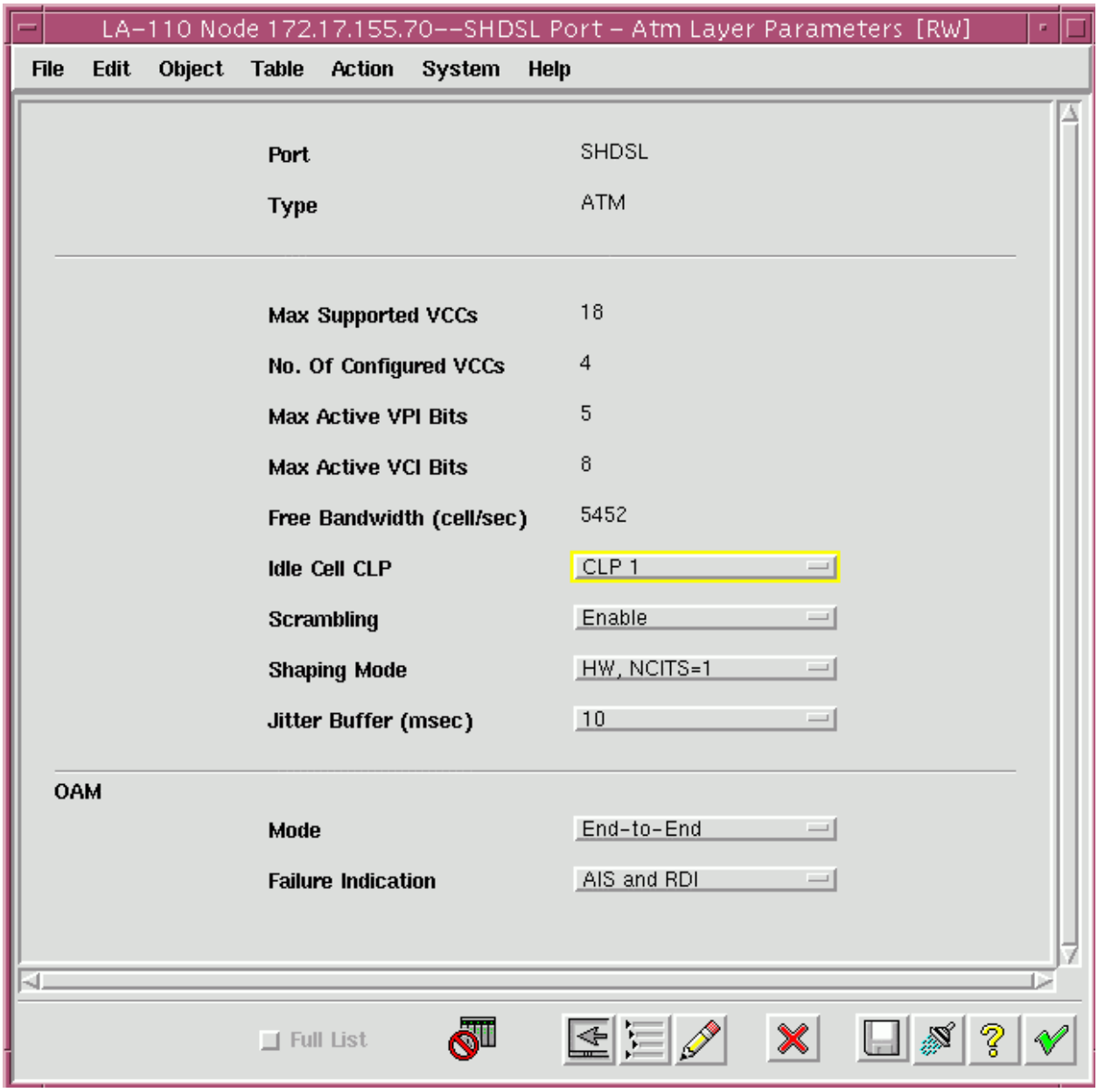


Figure 4-32. SHDSL Port –ATM Layer Parameters

2. Fill in the fields, as described in *Table 4-23*.
3. Click <**Save**> to save the changes.

Table 4-23. SHDSL Port – ATM Layer Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The protocol application which runs above the physical port. **ATM** Read-only
Max Supported VCCs	The maximum number of VCCs supported at this ATM interface. **18** Read-only
No. of Configured VCCs	The number of VCCs currently in use at this ATM interface. Read-only
Max Active VPI Bits	The maximum number of active VPI bits configured for use at the ATM interface. At the ATM UNI, the maximum number of active VPI bits configured for use ranges from 0 to 8 only. **5** Read-only
Max Active VCI Bits	The maximum number of active VCI bits configured for use at this ATM interface. **8** Read-only
Free Bandwidth (cell/sec)	The free rate in cells/sec. Output rate – Allocated BW Read-only
Idle Cell CLP	Determines the CLP bit value for transmission in empty time slots. **CLP0, CLP1**
Scrambling	Adds scrambling to the communications with the network. **Enable, Disable**
Shaping Mode	The shaping mode **SW** **HW, NCITS=1** **HW, NCITS=2**
Jitter Buffer (msec)	The field is set in ms and sets the Jitter Buffer size. The Jitter Buffer adapts the size of the LA140 traffic to the CDV (cell delay variation) of the ATM network. **1…30**

Table 4-23. SHDSL Port – ATM Layer Parameters (Cont.)

Parameter	Remarks
OAM	
Mode	OAM support mode, which determines the interface's location in a segment. **Segment, End-to-end**
Failure Indication	The OAM failure indication. **Disabled, AIS and RDI**

VCL Table

➤ **To configure SHDSL port ATM layer VCL table parameters:**

1. In the LA-110 Node Draw, select the SHDSL port, right-click and select **Configure > ATM Layer > VCL Table.**

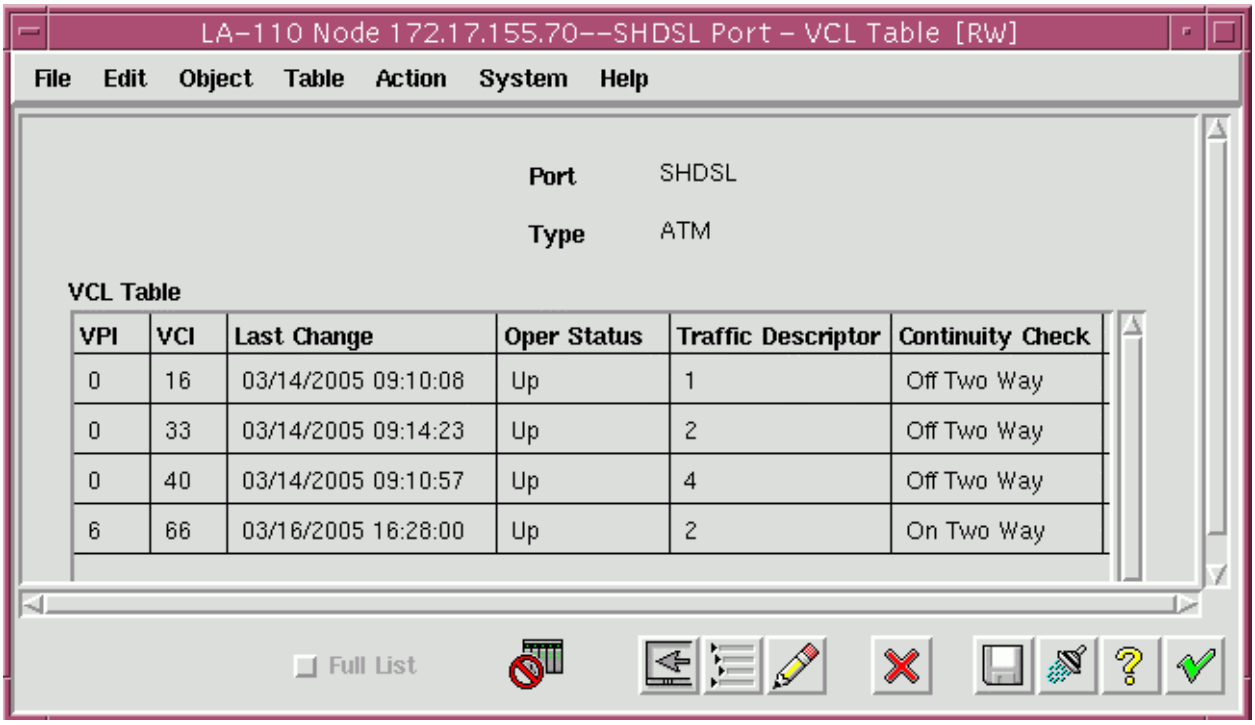

LA-110 Node 172.17.155.70--SHDSL Port - VCL Table [RW]
File Edit Object Table Action System Help
Port SHDSL
Type ATM
VCL Table
VPI VCI Last Change Oper Status Traffic Descriptor Continuity Check
0 16 03/14/2005 09:10:08 Up 1 Off Two Way
0 33 03/14/2005 09:14:23 Up 2 Off Two Way
0 40 03/14/2005 09:10:57 Up 4 Off Two Way
6 66 03/16/2005 16:28:00 Up 2 On Two Way
Full List

Figure 4-33. SHDSL Port – ATM Layer VCL Table

2. Fill in the fields, as described in *Table 4-24*.
3. Click <**Save**> to save the changes.

Table 4-24. SHDSL Port – ATM Layer VCL Table Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The protocol application which runs above the physical port. **ATM** Read-only
VCL Table	
VPI	**0..31**
VCI	**0..255**
Last Change	This field indicates the time of the last change on the port. Read-only
Oper. Status	The actual link status. **Up, Down** Read-only
Traffic Descriptor	The Traffic Descriptor. **1…200** Read-only
Continuity Check	The VCC admin status. **Off-two-way** (down)**, On-two way** (up)**, On-source, On-sink** Read-only
AAL Type	The type of AAL used on this VCC. **AAL1, AAL5** Read-only *Relevant only when the local VCL end-point is also the VCC end-point, and AAL is in use.*

Table 4-24. SHDSL Port – ATM Layer VCL Table Parameters (Cont.)

Parameter	Remarks
Encapsulation	*Relevant only when the local VCL end-point is also the VCC end-point, and AAL5 is in use.* The type of data encapsulation used over the AAL5 SSCS layer. Read-only *Available only for AAL Type = AAL5*
Loopback Test Status	Indicates whether a loopback test is running. **On:** the loop is currently running. **Off:** the loop is not running. Read-only

4.8 CES E1 Port Configuration

You can perform CES E1 port operations, in the Node draw, (or in the Port draw) and right-click and select the relevant shortcut menu option.

Basic tasks include viewing and configuring:

- Parameters
- Interface information
- Bundles configuration
- Bundles table
- Loopback testing.

Parameters

➤ **To configure CES E1 port parameters:**

1. In the LA-110 Node Draw, select the CES E1 port, right-click and select **Configure > Parameters.**

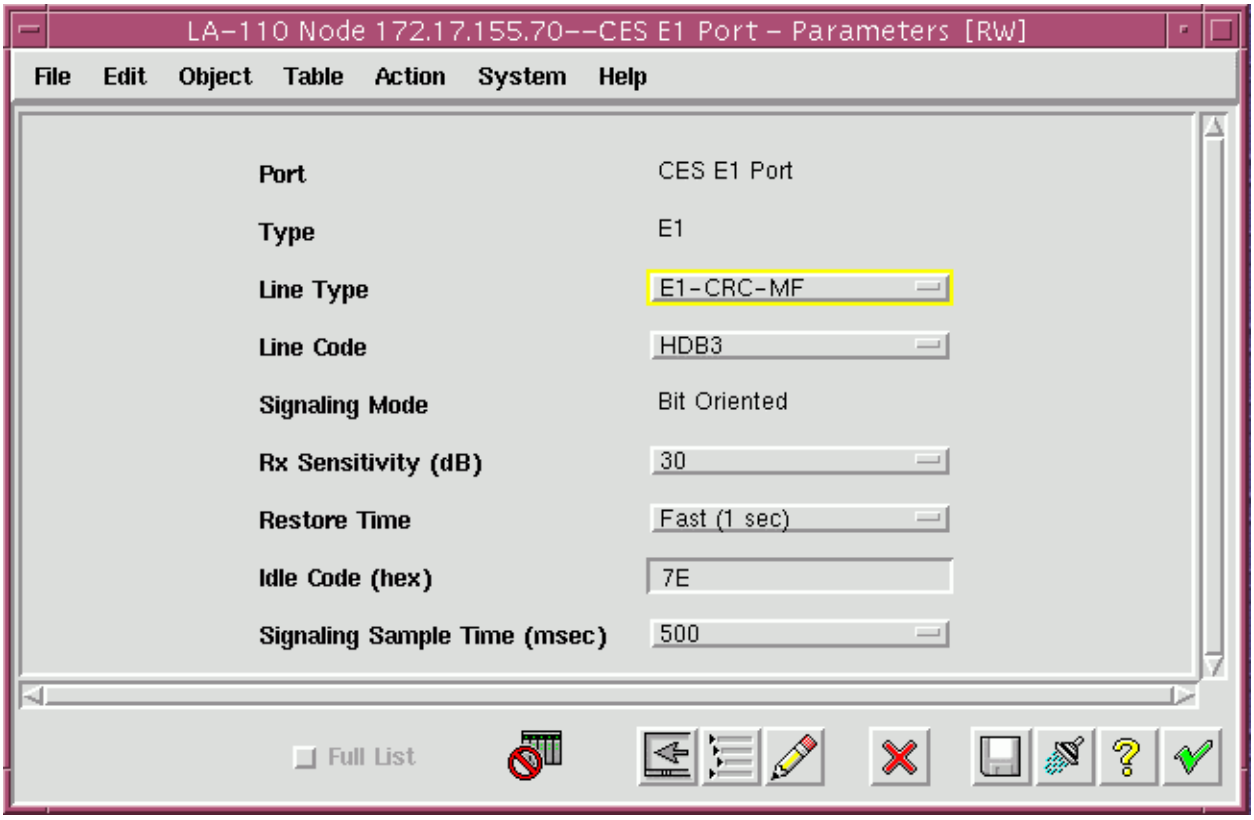


Figure 4-34. CES E1 Port –Parameters

2. Fill in the fields, as described in *Table 4-25*.
3. Click <**Save**> to save the changes.

   If the Line Type is changed to "Unframed", a confirmation message appears: "Changing line type to Unframed requires device reset. Operation will RESET the device. Do you wish to continue?" Click <**Yes**> to confirm.

   If the Line Type is changed from "Unframed", a confirmation message appears: "Changing line type to Framed requires device reset. Operation will RESET the device. Do you wish to continue?" Click <**Yes**> to confirm.

Table 4-25. CES E1 Port Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Type	The protocol application which runs above the physical port. **E1** Read-only
Line Type	Indicates the variety of DS1 Line implementing this circuit. The type of circuit affects the number of bits per second that the circuit can reasonably carry, as well as the interpretation of the usage and error statistics. **E1, E1-CRC, E1-MF, E1-CRC-MF, E1 Unframed** The NMS must check in the CES table if there is a connection with signaling (active or not). If there is at least one connection which is 'basic' then the available options include: E1-MF, E1-CRC-MF Also, NMS must check that there is no Bundle that uses time slot 16. If there is one bundle present, then the available options include: E1, E1-CRC, and E1 Unframed.
Line Code	Describes the variety of Zero Code Suppression used on this interface, which in turn affects a number of its characteristics. **HDB3, AMI**
Signaling Mode	The signaling mode. **None:** there are No bits are reserved for signaling on this channel. **Bit Oriented:** the E1 Channel Associated Signaling is in use. Read-only *Disabled for Line Type = Unframed*
Rx Sensitivity (dB)	Determines the maximum attenuation of the receive signal that can be compensated for by the E1 interface receive path, to obtain the BER performance required by the standards. **12…30**
Restore Time	Used to change the frame synchronization algorithm, to reduce the time required for the E1 port to return to normal operation after local loss of synchronization. **CCITT:** algorithm, to reduce the time required for the In accordance with ITU-T Rec. G.706. **Fast (1 sec):** after one second **AT & T TR-62411 (10 sec):** after 10 seconds *Disabled for Line Type - Unframed*

Table 4-25. CES E1 Port Parameters (Cont.)

Parameter	Remarks
Idle Code (hex)	Selects the code transmitted to fill idle (unused) timeslots in the frames transmitted through this user port. 0x00..0xFF *Disabled for Line Type - Unframed*
Signaling Sample Time (msec)	Determines how often the signaling of the DBCES connections are sampled and their activity. **100, 200, 500, 1000, 1500, 2000 msec** *Disabled for Line Type - Unframed*

Interface Information

➤ **To view CES E1 port interface information:**

- In the LA-110 Node Draw, select the CES E1 port, right-click and select **Configure > Interface Info.**

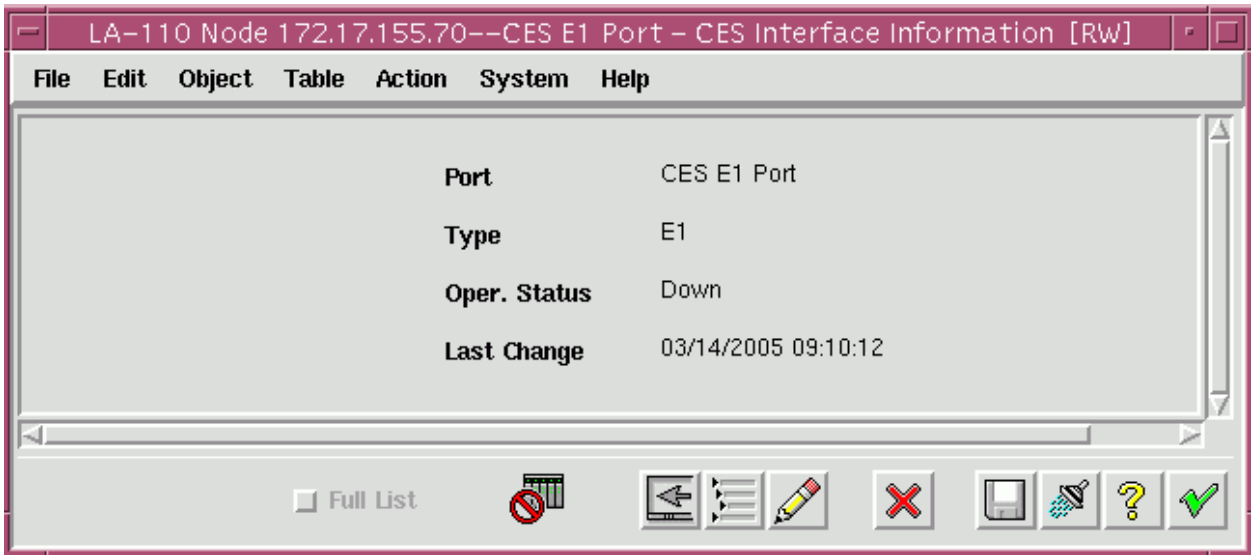


Figure 4-35. CES E1 Port – Interface Information

Table 4-26. CES E1 Port – Interface Information Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Type	The protocol application which runs above the physical port. **E1** Read-only
Oper. Status	The actual link status. **Up, Down** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Bundles Configuration

Note *Bundles Configuration is disabled when the Line Type is "Unframed".*

Bundles configuration involves assigning an available time slot to a bundle.

➤ **To configure CES E1 port bundles configuration:**

1. In the LA-110 Node Draw, select the CES E1 port, right-click and select **Configure > Bundles Configuration.**

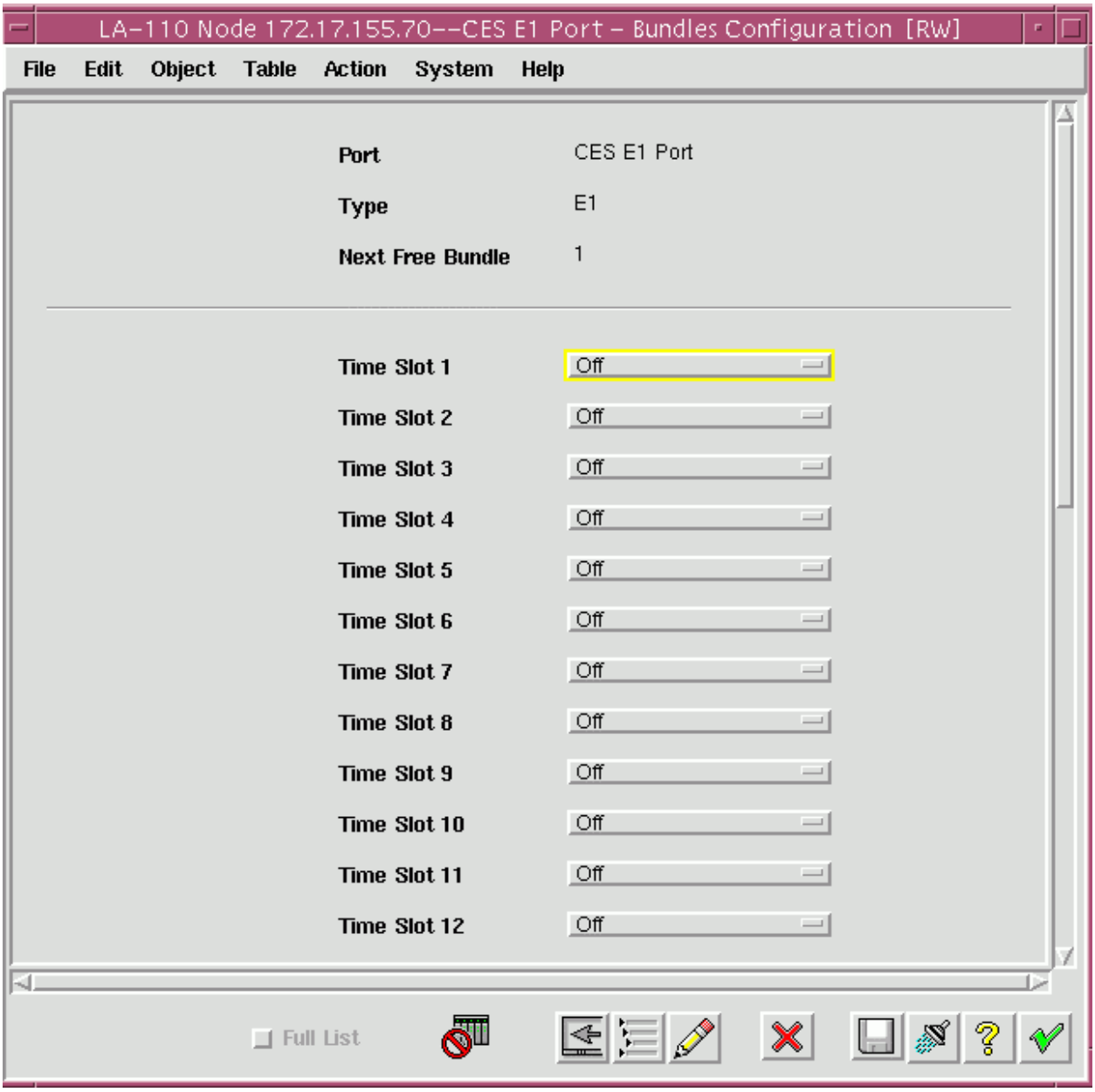


Figure 4-36. CES E1 Port – Bundles Configuration

2. Fill in the fields, as described in *Table 4-27*.
3. Click <**Save**> to save the changes.

Table 4-27. CES E1 Port – Bundles Configuration Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Type	The protocol application which runs above the physical port. **E1** Read-only
Next Free Bundle	Used to assist the NMS in selecting a value for the bundle index. **1-31** Read-only
Time Slots (1…31)	Determines the timeslots assigned to a bundle. **Off, On, Used - #** (the number is the bundle number)

Bundles Table

In the Bundles table, you can view all existing bundles' statuses and you can delete a selected row that is not attached to a VCC.

➤ **To view and delete entries in the CES E1 port Bundles table:**

1. In the LA-110 Node Draw, select the CES E1 port, right-click and select **Configure > Bundles Table.**

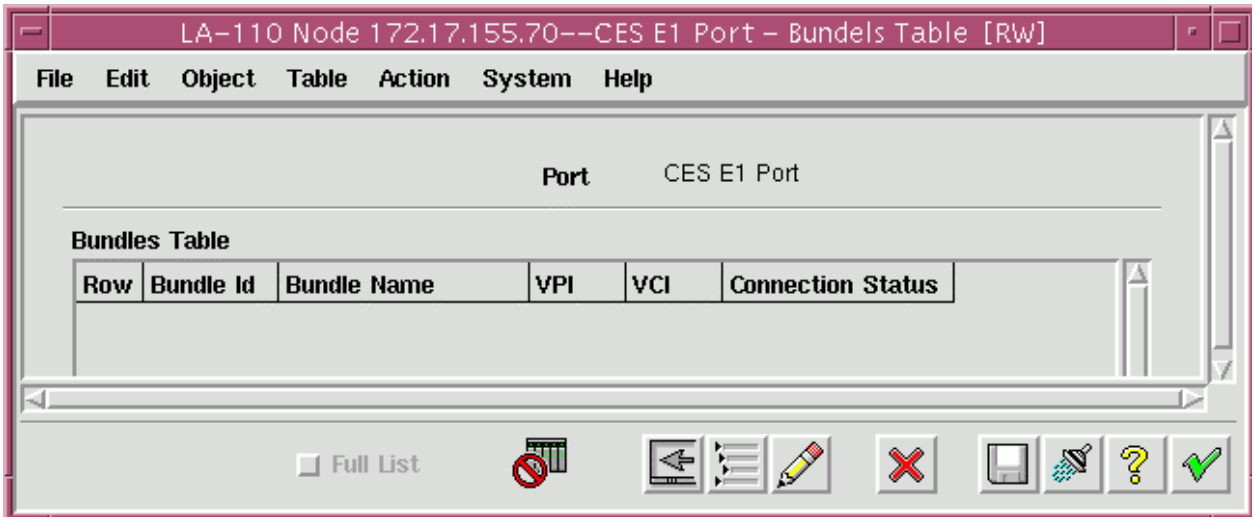


Figure 4-37. CES E1 Port – Bundles Table

2. To delete a row in the Bundles Table, select the relevant row and click <**Delete Row**>.

Table 4-28. CES E1 Port – Bundles Table Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Bundles Table	
Bundle ID	The bundle ID. **1…31**
Bundle Name	The bundle name, based on the index value the agent selected for the (new) Bundle interface. **Bundle 1…Bundle 31**
VPI	The VPI value which is associated with this bundle
VCI	The VCI value which is associated with this bundle
Connection Status	The associated connection status. **Up, Down, Unknown**

Loopback Testing

➤ **To configure CES E1 port loopback testing:**

- In the LA-110 Node Draw, select the CES E1 port, right-click and select **Configure > Loopback Test.**

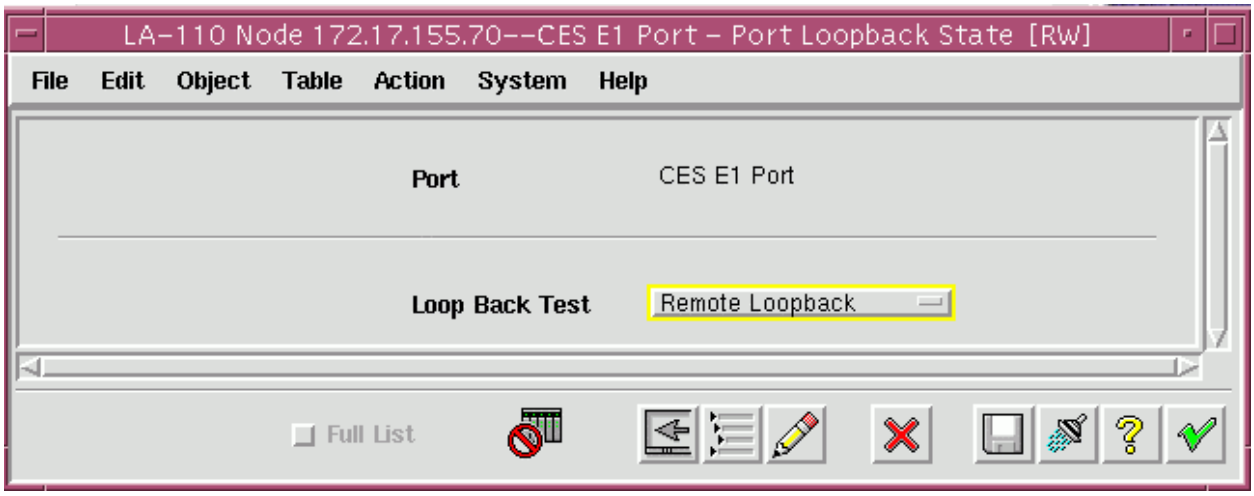


Figure 4-38. CES E1 Port – Loopback Test

3. Fill in the fields, as described in *Table 4-29*.
4. Click <**Save**> to save the changes.

Table 4-29. CES E1 Port – Loopback Test Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Loopback Test	Activates a loopback test on the specified port. • **Local Loopback (LLB):** Can be used to check the source of a certain problem. Activates the local loopback on the local data port. Checks that the user's equipment receives its own signal while the loopback is connected. If it does, the problem is external. • **Remote Loopback (RLB):** Can be used to check the source of a certain problem. For example, if there is certain alarm on a port, and if after activating the RLB the alarm disappears, then the problem is external. • **None:** No Test.

4.9 Performance Monitoring

LA-110 collects statistics to enable performance monitoring and troubleshooting.

LA-110 features the following types of performance statistics counters:

- Current: displays statistics for the current 15 minutes interval.
- Intervals: displays statistics for the last 24 hours
- Running: displays accumulating data on certain counter with no time limit.

LA-110 MD allows you to monitor the performance of all layers of the LA-110 ports, including:

- Data FR
- LAN
- SHDSL
- CES E1.

Note *All performance monitoring parameters, as shown in the tables below, are read-only.*

Note *Every Statistic form includes the following common fields at the top:*

- *Last Update: Indicates the last time data was read from the agent.*
- *Next Update: Indicates the next time data will be read from the MIB. (Last Update + Delta).*
- *Delta: Indicates polling interval, the number of seconds between updates.*

4.10 Data Port Monitoring

LA-110 MD allows you to view Data port performance statistics for FR and AAL1 Stream application modes.

Basic tasks include:

- Viewing FR interface statistics
- Viewing AAL1 Stream application mode statistics.

Viewing FR Interface Statistics

➤ **To view the FR interface statistics of the Data FR port:**

- In the LA-110 Node Draw, select the Data FR port, right-click and select **Monitor > FR Interface > Interface Statistics.**

  A Monitor form appears, displaying the current statistics results as shown in *Figure 4-39* and as listed in *Table 4-30*.

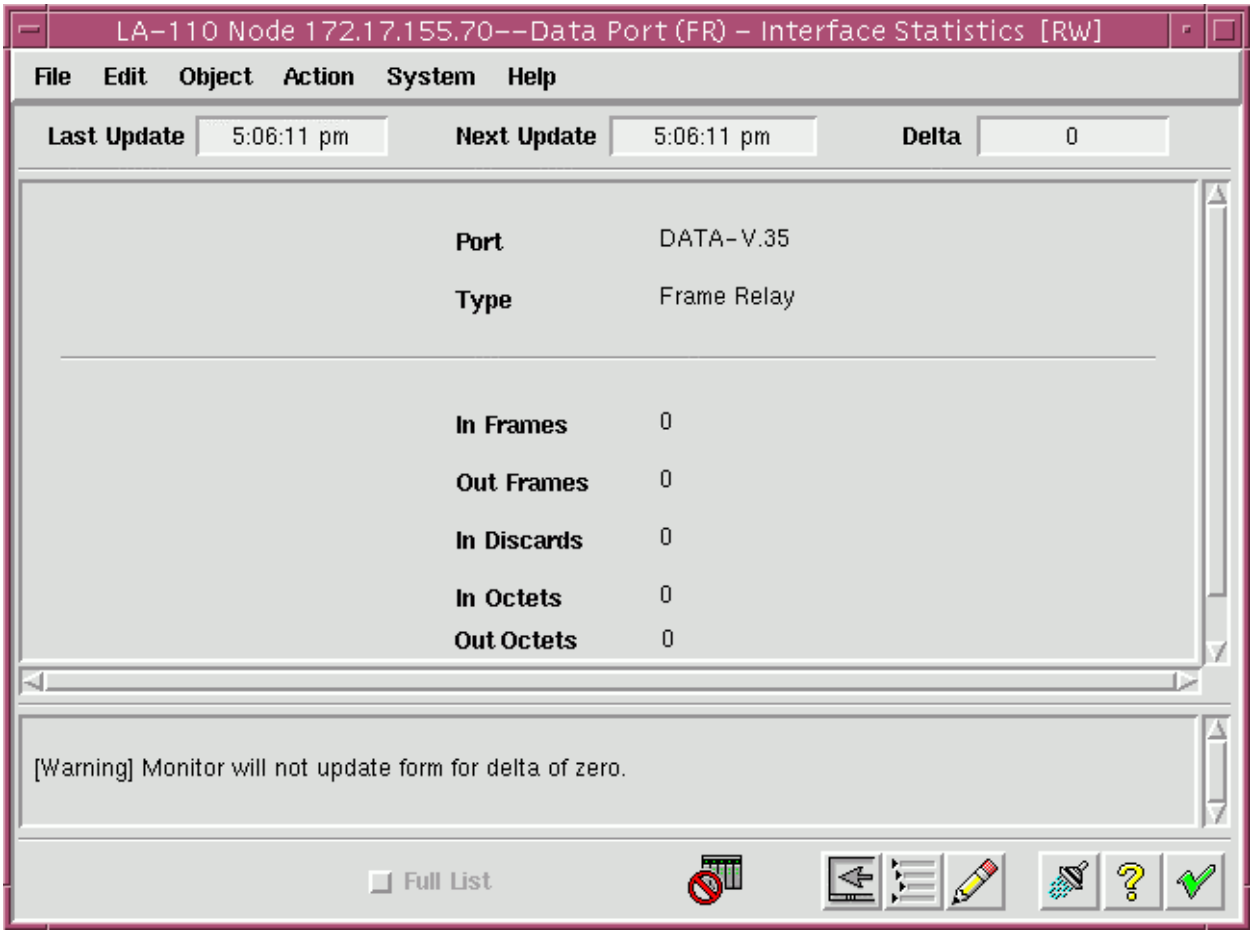


Figure 4-39. Data FR Port - FR Interface Statistics

Table 4-30. Data FR Port Monitoring – FR Interface Statistics Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The interface type **Frame Relay** Read-only
In Frames	The number of packets, delivered by this sub-layer to a higher (sub-)layer, addressed to a unicast address (i.e. not addressed to a multicast or broadcast address at this sub-layer. Read-only
Out Frames	The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. Read-only
In Discards	The total number of frames discarded during processing by the receive path. Read-only.
In Octets	The total number of octets received on the interface, including framing characters. Read-only
Out Octets	The total number of octets transmitted out of the interface, including framing characters. Read-only

Viewing AAL1 Stream Interface Statistics

➤ **To view the AAL1 Stream interface statistics of the Data FR port:**

- In the LA-110 Node Draw, select the Data FR port, right-click and select **Monitor > AAL1 Stream Interface > Interface Statistics.**

  A Monitor form appears, displaying the current statistics results as shown in *Figure 4-40* and as listed in *Table 4-31*.

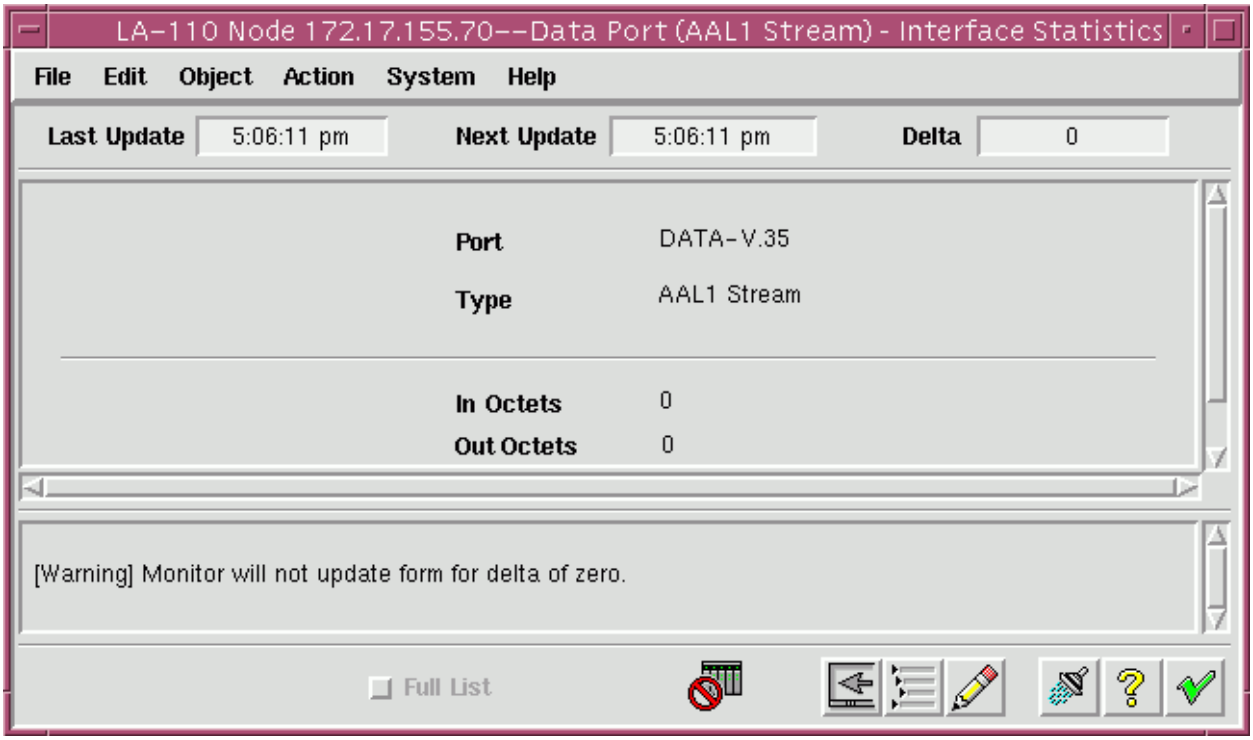


Figure 4-40. Data FR Port – AAL1 Stream Interface Statistics

Table 4-31. Data FR Port Monitoring – AAL1 Stream Interface Statistics Parameters

Parameter	Remarks
Port	The selected port Read-only
Type	The interface type **AAL1 Stream** Read-only
In Octets	The total number of octets received on the interface, including framing characters. Read-only
Out Octets	The total number of octets transmitted out of the interface, including framing characters. Read-only

4.11 LAN Port Monitoring

LA-110 MD allows you to view LAN port performance statistics. Basic tasks include:

- Viewing LAN interface statistics.

Viewing LAN Interface Statistics

➤ **To view interface statistics of the LAN port:**

- In the LA-110 Node Draw, select the LAN port, right-click and select **Monitor > LAN > Interface Statistics.**

  A Monitor form appears, displaying the current statistics results as shown in *Figure 4-41* and as listed in *Table 4-32*.

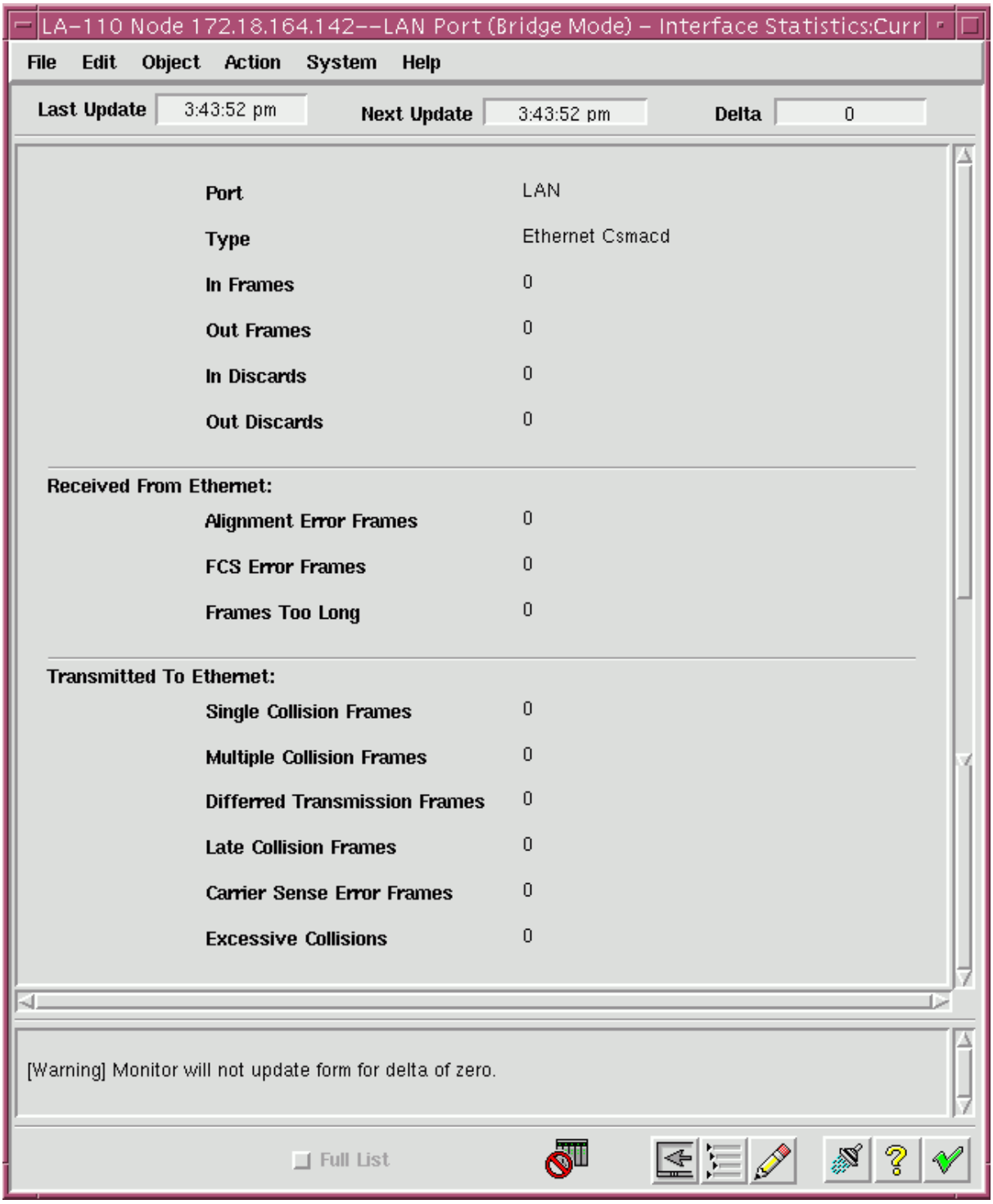

LA-110 Node 172.18.164.142--LAN Port (Bridge Mode) – Interface Statistics:Curr
File Edit Object Action System Help
Last Update 3:43:52 pm
Next Update 3:43:52 pm
Delta 0
Port LAN
Type Ethernet Csmacd
In Frames 0
Out Frames 0
In Discards 0
Out Discards 0
Received From Ethernet:
Alignment Error Frames 0
FCS Error Frames 0
Frames Too Long 0
Transmitted To Ethernet:
Single Collision Frames 0
Multiple Collision Frames 0
Differred Transmission Frames 0
Late Collision Frames 0
Carrier Sense Error Frames 0
Excessive Collisions 0
[Warning] Monitor will not update form for delta of zero.
Full List

Figure 4-41. LAN Port – Interface Statistics

Table 4-32. LAN Port Interface Statistics Parameters

Parameter	Remarks
Port	The selected port **LAN** Read-only
Type	The interface type **Ethernet Csmacd** Read-only
In Octets	The total number of octets received on the interface, including framing characters. Read-only *Applies to the LAN port only (and not the FE port)*
In Frames	The number of packets, delivered by this sub-layer to a higher (sub-)layer, addressed to a unicast address (i.e. not addressed to a multicast or broadcast address at this sub-layer. Read-only
Out Frames	The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. Read-only
In Discards	The total number of frames discarded during processing by the receive path. Read-only
Out Discards	The total number of frames discarded during processing by the transmit path. Read-only
Received From Ethernet	
Alignment Error Frames	Number of frames received with alignment errors
FCS Error Frames	Number of frames received with CRC errors (FCS – Frame Check Sequence)
Frames Too Long	The number of frames discarded by this port due to excessive size
Transmitted To Ethernet	
Single Collision Frames	A counter of successfully transmitted frames for which transmission is inhibited by exactly one collision. Valid only in half duplex mode
Multiple Collision Frames	A counter of successfully transmitted frames for which transmission is inhibited by more than one collision. Valid only in half duplex mode

Table 4-32. LAN Port Interface Statistics Parameters (Cont.)

Parameter	Remarks
Deferred Transmissions Frames	A counter of frames for which the first transmission attempt is delayed because the medium is busy. Valid only in half duplex mode
Late Collision Frames	The number of times that a collision is detected on a particular interface later then 512 bit-times into the transmission of a packet. Valid only in half duplex mode
Carrier Sense Error Frames	The number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame
Excessive Collisions	The numbers of times that a collision is detected on a particular interface above the set rate.

4.12 SHDSL Port Monitoring

LA-110 MD allows you to view SHDSL port performance statistics.

Basic tasks include:

- Viewing SHDSL physical layer statistics
- Viewing SHDSL ATM layer statistics
- Viewing SHDSL AAL1 statistics
- Viewing SHDSL AAL5 statistics.

Viewing SHDSL Physical Layer Statistics

Basic tasks include:

- Viewing SHDSL current data statistics (interval and one day)
- Viewing SHDSL intervals data statistics
- Viewing SHDSL accumulated data statistics.

Current Data Statistics

Basic tasks include:

- Viewing SHDSL current interval data statistics
- Viewing SHDSL current day data statistics.

➤ **To view current data interval statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > Physical Layer > Current Data > Interval.**

  A Monitor form appears, displaying the current interval data statistics results as shown in *Figure 4-42* and as listed in *Table 4-33*.

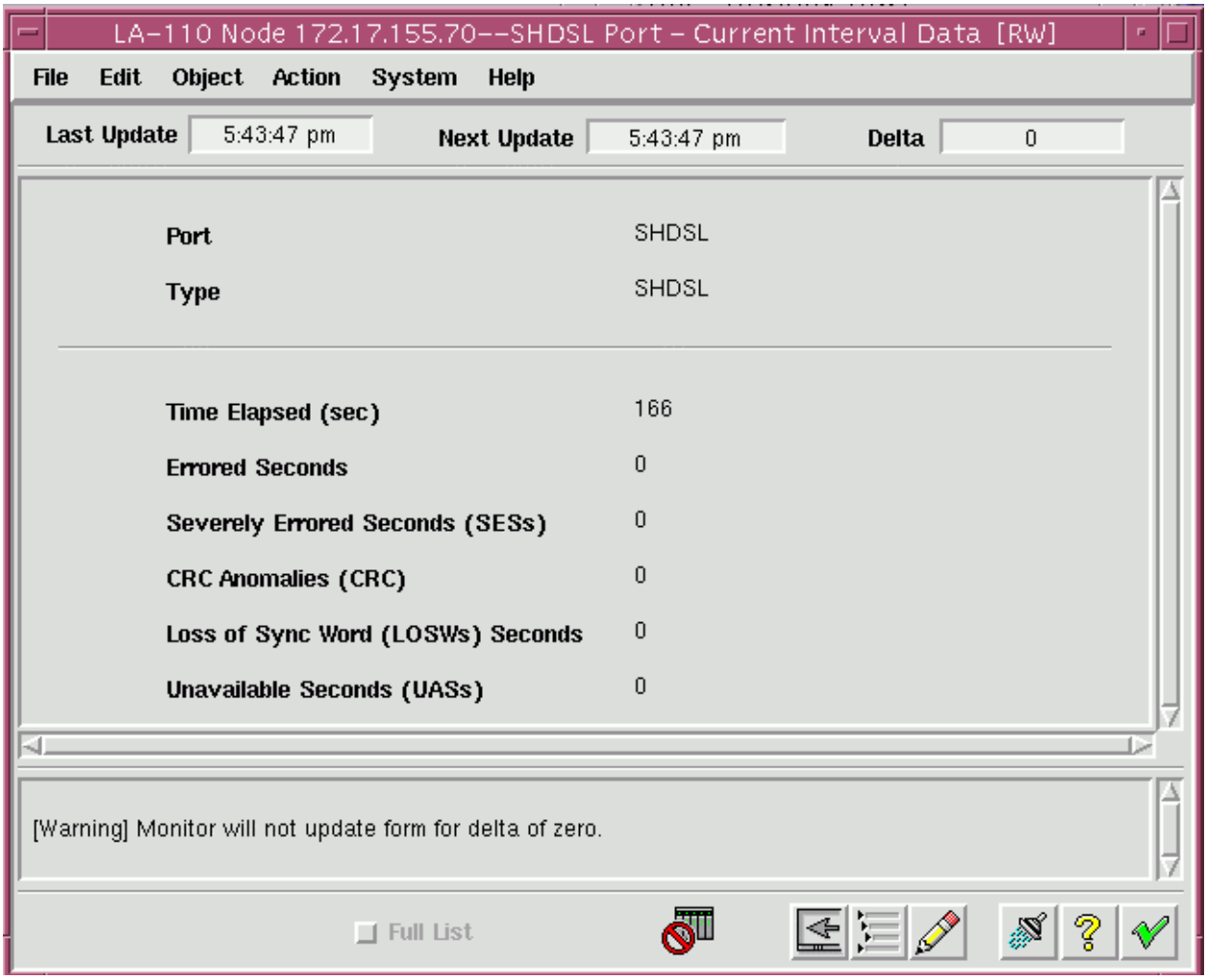

LA-110 Node 172.17.155.70--SHDSL Port - Current Interval Data [RW]
File Edit Object Action System Help
Last Update 5:43:47 pm
Next Update 5:43:47 pm
Delta 0
Port SHDSL
Type SHDSL
Time Elapsed (sec) 166
Errored Seconds 0
Severely Errored Seconds (SESs) 0
CRC Anomalies (CRC) 0
Loss of Sync Word (LOSWs) Seconds 0
Unavailable Seconds (UASs) 0
[Warning] Monitor will not update form for delta of zero.
Full List

Figure 4-42. SHDSL Port – Physical Layer – Current Interval Data Statistics

Table 4-33. SHDSL Port – Physical Layer – Current Interval Data Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **SHDSL** Read-only
Time Elapsed	The data of this group is for the current interval of 15 minutes. The **Time Elapsed** field shows how much time passed since the beginning of the current interval. Read-only
Errored Seconds	The number of Errored Seconds. Read-only
Severely Errored Seconds (SESs)	The number of Severely Errored Seconds. Read-only

Table 4-33. SHDSL Port – Physical Layer – Current Interval Data Statistics Parameters (Cont.)

Parameter	Remarks
CRC Anomalies	The number of CRC anomalies. Read-only
Loss of Sync Word Seconds (LOSWs)	The number of Loss of Sync Word Seconds Read-only
Unavailable Seconds (UASs)	The number of Unavailable Seconds. Read-only

➤ **To view current day data statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > Physical Layer > Current Data > One Day.**

  A Monitor form appears, displaying the current day data statistics results as shown in *Figure 4-43* and as listed in *Table 4-34*.

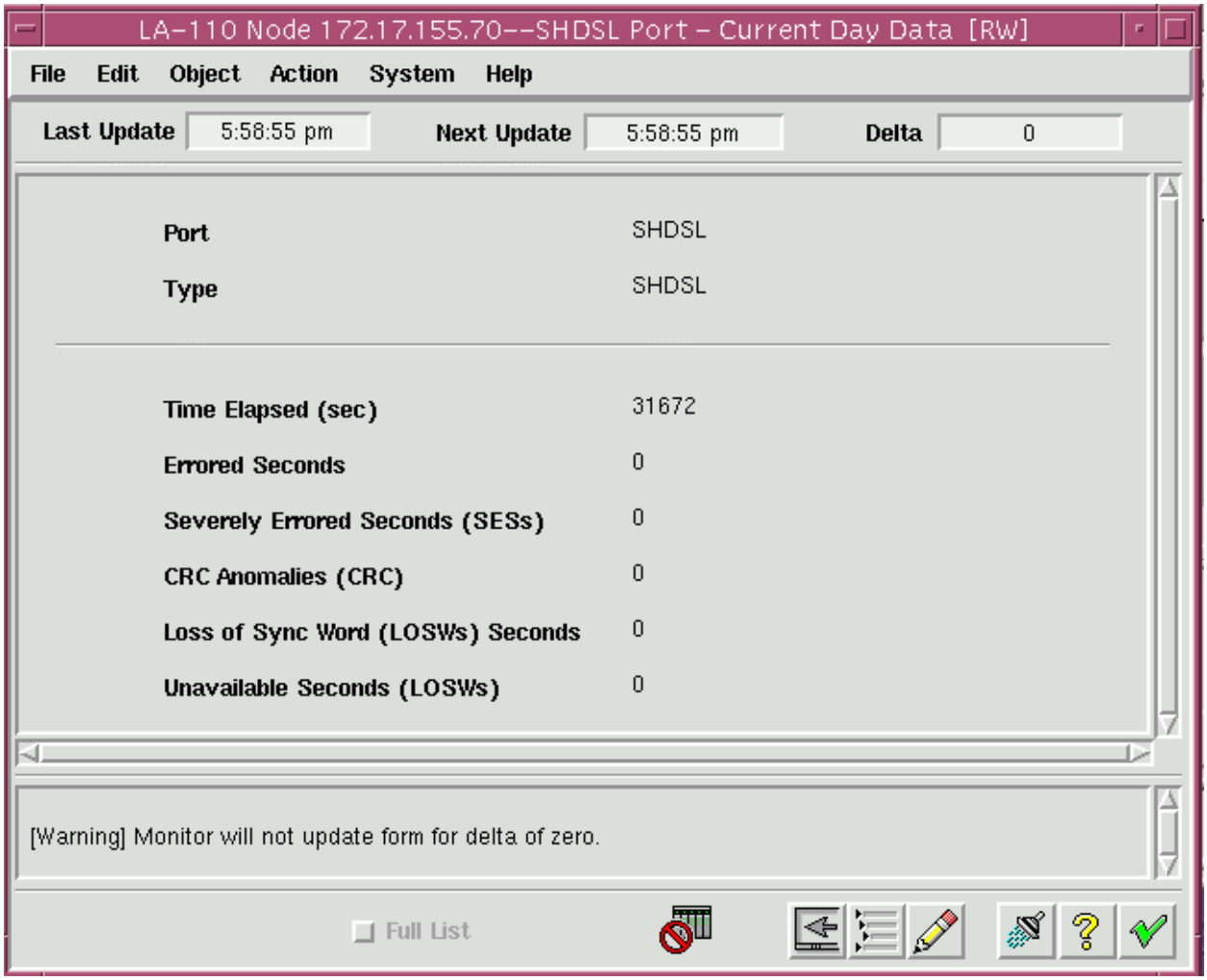


Figure 4-43. SHDSL Port – Physical Layer – Current Day Data Statistics

Table 4-34. SHDSL Port – Physical Layer – Current Day Data Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **SHDSL** Read-only
Time Elapsed	The data of this group is for the current 24 hours period (one day). The **Time Elapsed** field shows how much time passed since the beginning of the current interval (day). Read-only
Errored Seconds	The number of Errored Seconds. Read-only
Severely Errored Seconds (SESs)	The number of Severely Errored Seconds. Read-only
CRC Anomalies	The number of CRC anomalies. Read-only
Loss of Sync Word Seconds (LOSWs)	The number of Loss of Sync Word Seconds Read-only
Unavailable Seconds (UASs)	The number of Unavailable Seconds. Read-only

Intervals Data Statistics

➤ **To view intervals data statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > Physical Layer > Intervals Data.**

  A Monitor form appears, displaying the intervals data statistics results as shown in *Figure 4-44* and as listed in *Table 4-35*.

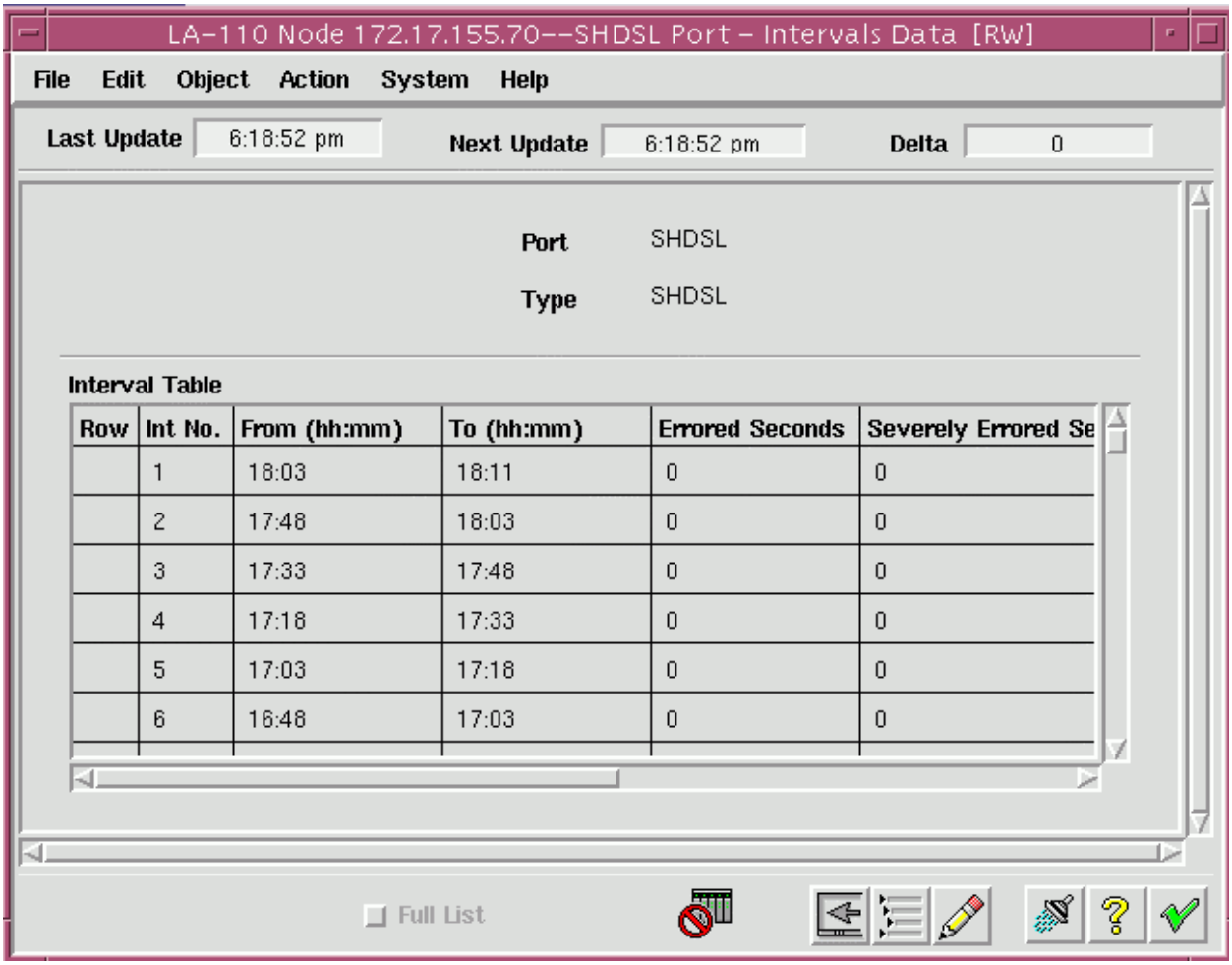

LA-110 Node 172.17.155.70--SHDSL Port – Intervals Data [RW]
File Edit Object Action System Help
Last Update 6:18:52 pm
Next Update 6:18:52 pm
Delta 0
Port SHDSL
Type SHDSL
Interval Table
Row | Int No. | From (hh:mm) | To (hh:mm) | Errored Seconds | Severely Errored Se
1 | 18:03 | 18:11 | 0 | 0
2 | 17:48 | 18:03 | 0 | 0
3 | 17:33 | 17:48 | 0 | 0
4 | 17:18 | 17:33 | 0 | 0
5 | 17:03 | 17:18 | 0 | 0
6 | 16:48 | 17:03 | 0 | 0
Full List

Figure 4-44. SHDSL Port – Physical Layer – Intervals Data Statistics

Table 4-35. SHDSL Port – Physical Layer – Intervals Data Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **SHDSL** Read-only
Interval Table	
Int. No.	The number of intervals. Read-only
From (hh:mm)	The start time of the interval in hours and minutes. Read-only

Table 4-35. SHDSL Port – Physical Layer – Intervals Data Statistics Parameters (Cont.)

Parameter	Remarks
To (hh:mm)	The end time of the interval in hours and minutes. Read-only
Errored Seconds	The number of Errored Seconds. Read-only
Severely Errored Seconds (SESs)	The number of Severely Errored Seconds. Read-only
CRC Anomalies	The number of CRC anomalies. Read-only
Loss of Sync Word Seconds (LOSWs)	The number of Loss of Sync Word Seconds Read-only
Unavailable Seconds (UASs)	The number of Unavailable Seconds. Read-only

Accumulated Data Statistics

The Accumulated Data Statistics dialog shows running counters, as described previously.

➤ **To view accumulated data statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > Physical Layer > Accumulated Data.**

  A Monitor form appears, displaying the accumulated data statistics results as shown in *Figure 4-45* and as listed in *Table 4-33*.

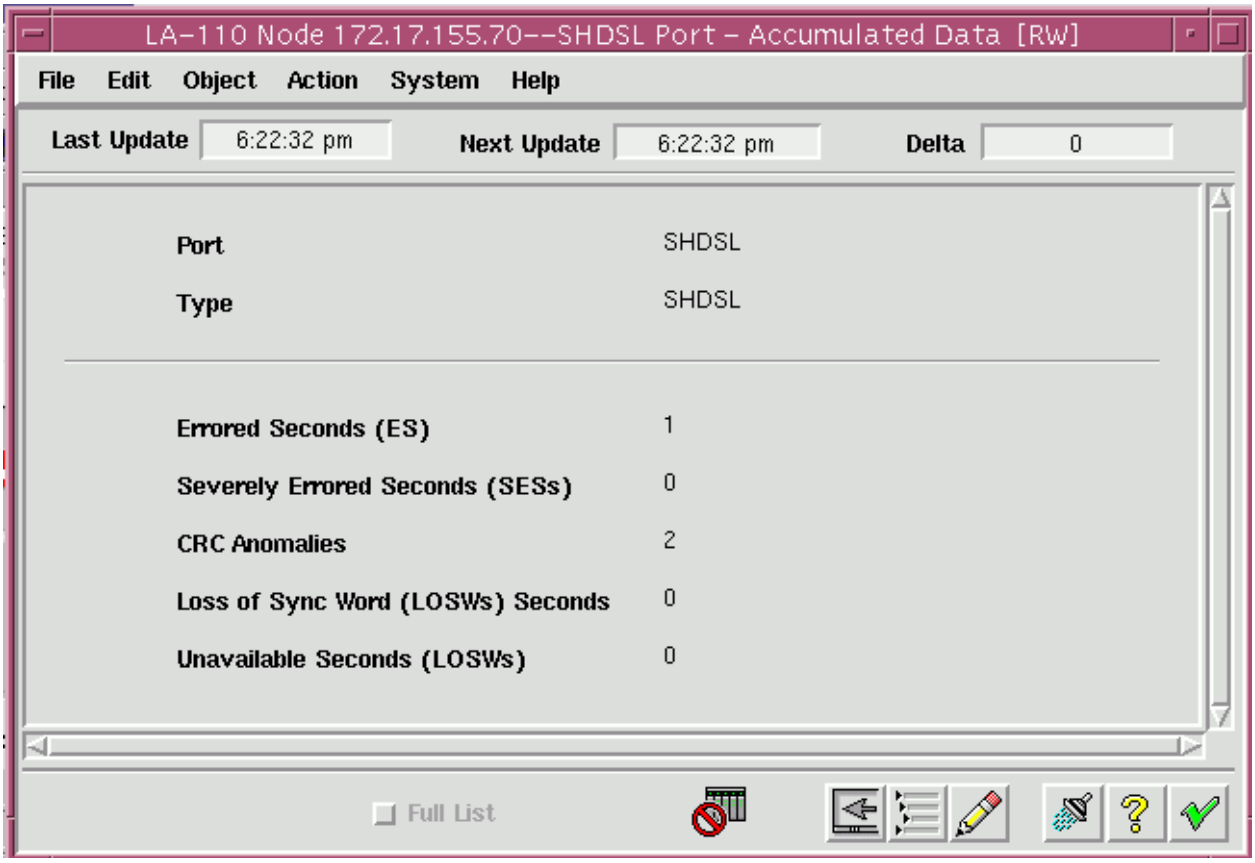

LA-110 Node 172.17.155.70--SHDSL Port - Accumulated Data [RW]
File Edit Object Action System Help
Last Update 6:22:32 pm
Next Update 6:22:32 pm
Delta 0
Port SHDSL
Type SHDSL
Errored Seconds (ES) 1
Severely Errored Seconds (SESs) 0
CRC Anomalies 2
Loss of Sync Word (LOSWs) Seconds 0
Unavailable Seconds (LOSWs) 0
Full List

Figure 4-45. SHDSL Port – Physical Layer – Accumulated Data Statistics

Viewing SHDSL ATM Layer Statistics

Basic tasks include:

- Viewing TC sublayer faults
- Viewing interface statistics
- Viewing VCL statistics.

TC Sublayers Faults

➤ **To view TC sublayer faults statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > ATM Layer > TC Sublayer Faults.**

  A Monitor form appears, displaying the TC sublayer faults statistics results as shown in *Figure 4-46* and as listed in *Table 4-36*.

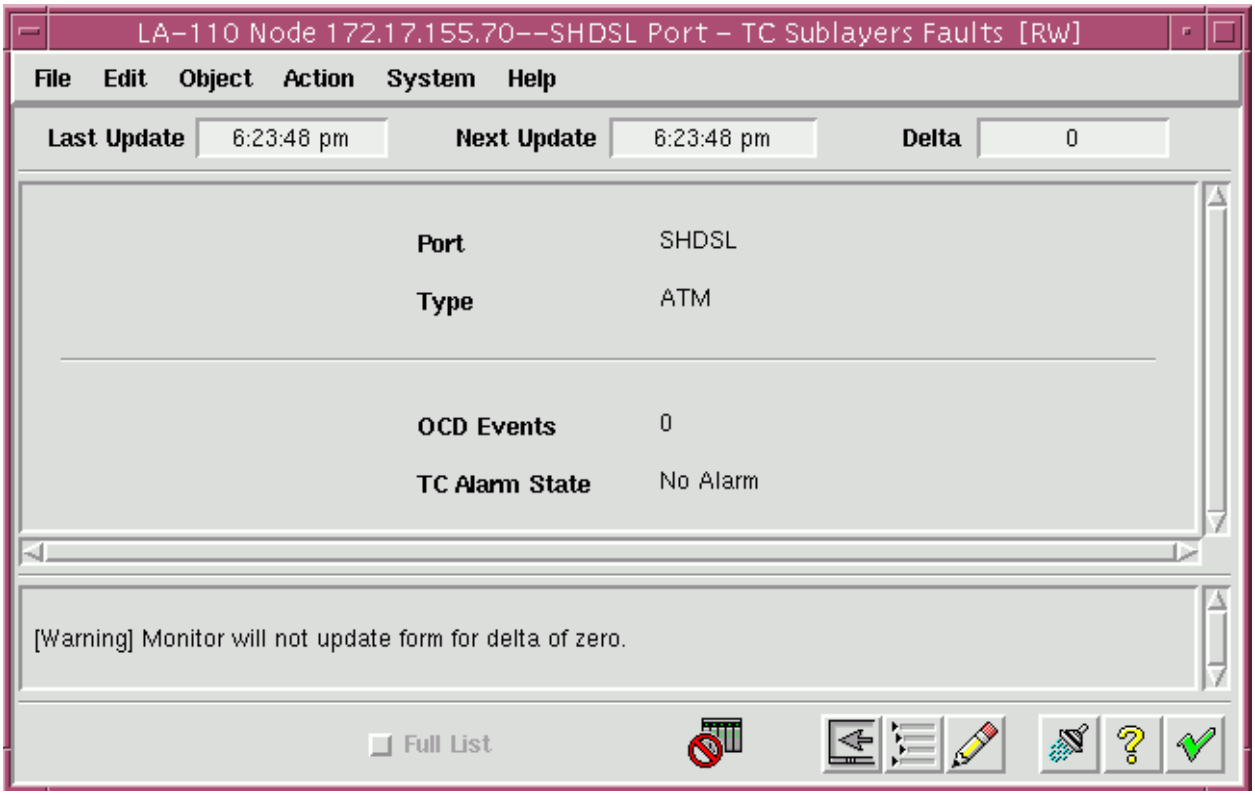


Figure 4-46. SHDSL Port – ATM Layer – TC Sublayer Faults Statistics

Table 4-36. SHDSL Port – ATM Layer – TC Sublayer Faults Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **ATM** Read-only
OCD Events	The number of times the Out of Cell Delineation (OCD) events occur. If seven consecutive ATM cells have Header Error Control (HEC) violations, an OCD event occurs. A high number of OCD events may indicate a problem with the TC Sublayer. Read-only
TC Alarm State	This variable indicates if there is an alarm present for the TC Sublayer. The value lcdFailure indicates that a Loss of Cell Delineation (LCD) failure state has been declared for the TC Sublayer. Transition from failure to the no alarm state occurs when six consecutive ATM cells are received with valid HEC, followed by about 10 seconds of acceptable working signal. **No Alarm** **LCD Failure** Read-only

Interface Statistics

➤ **To view interface statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > ATM Layer > Interface Statistics.**

  A Monitor form appears, displaying the interface statistics results as shown in *Figure 4-47* and as listed in *Table 4-37*.

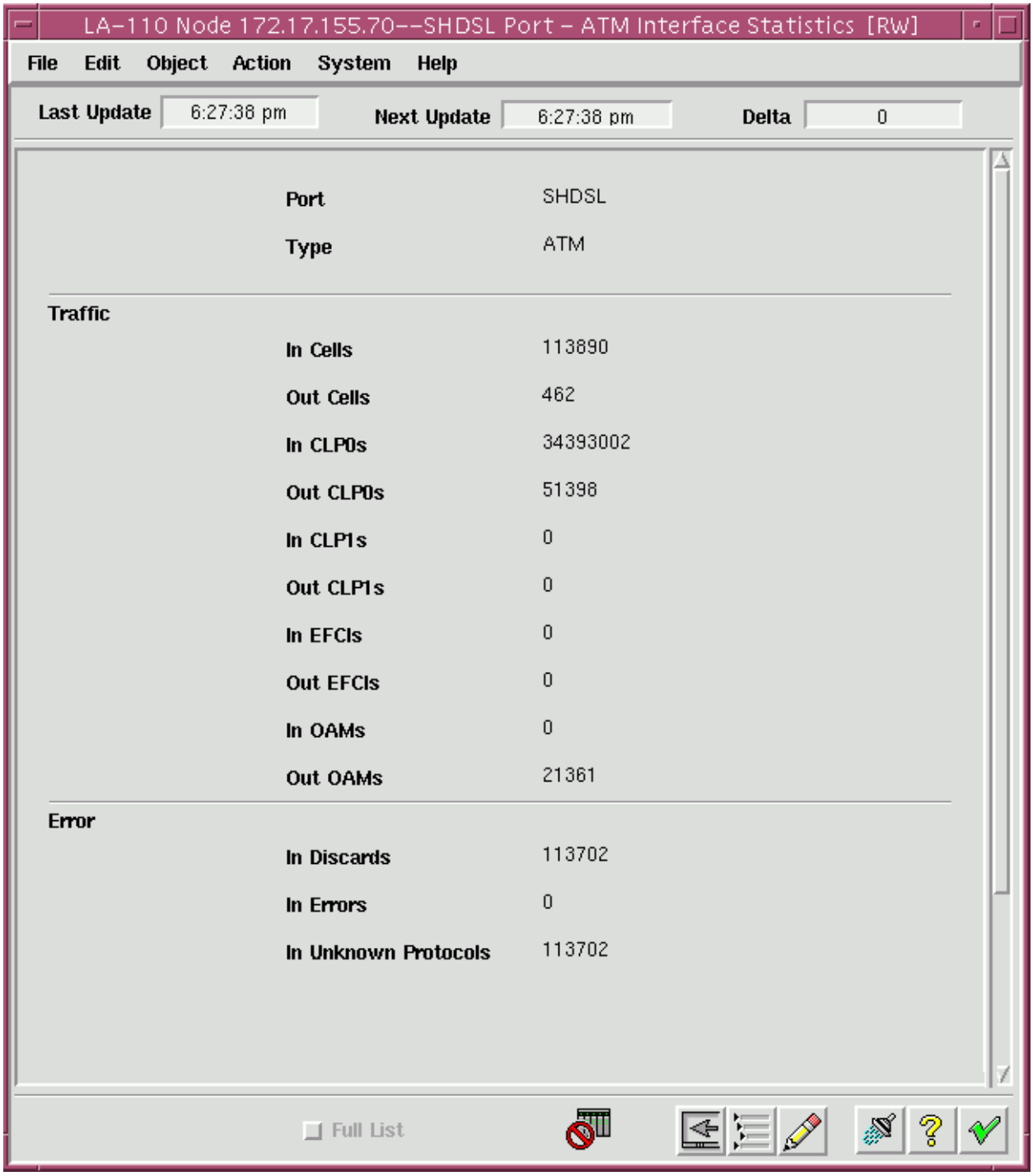


Figure 4-47. SHDSL Port – ATM Layer – Interface Statistics

Table 4-37. SHDSL Port – ATM Layer – Interface Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **ATM** Read-only
Traffic	
In Cells	The total number of octets received on the interface, including framing characters. Read-only
Out Cells	The total number of octets transmitted out of the interface, including framing characters. Read-only
In CLP0s	The number of cells received with correct HECs and CLP=0 and not misrouted. Read-only
Out CLP0s	The number of cells transmitted with CLP=0. Read-only
In CLP1s	The number of cells received with correct HECs and CLP=1 and not misrouted. Read-only
Out CLP1s	The number of cells transmitted with CLP=1. Read-only
In EFCIs	The number of cells received with EFCI bit set by the Agent. Read-only
In OAM	The number of OAM cells received with correct HECs. Read-only
Out OAM	The number of transmitted OAM cells. Read-only
Errors	
In Discards	The total number of frames discarded during processing by the receive path. Read-only
In Errors	The number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space. Read-only

Table 4-37. SHDSL Port – ATM Layer – Interface Statistics Parameters (Cont.)

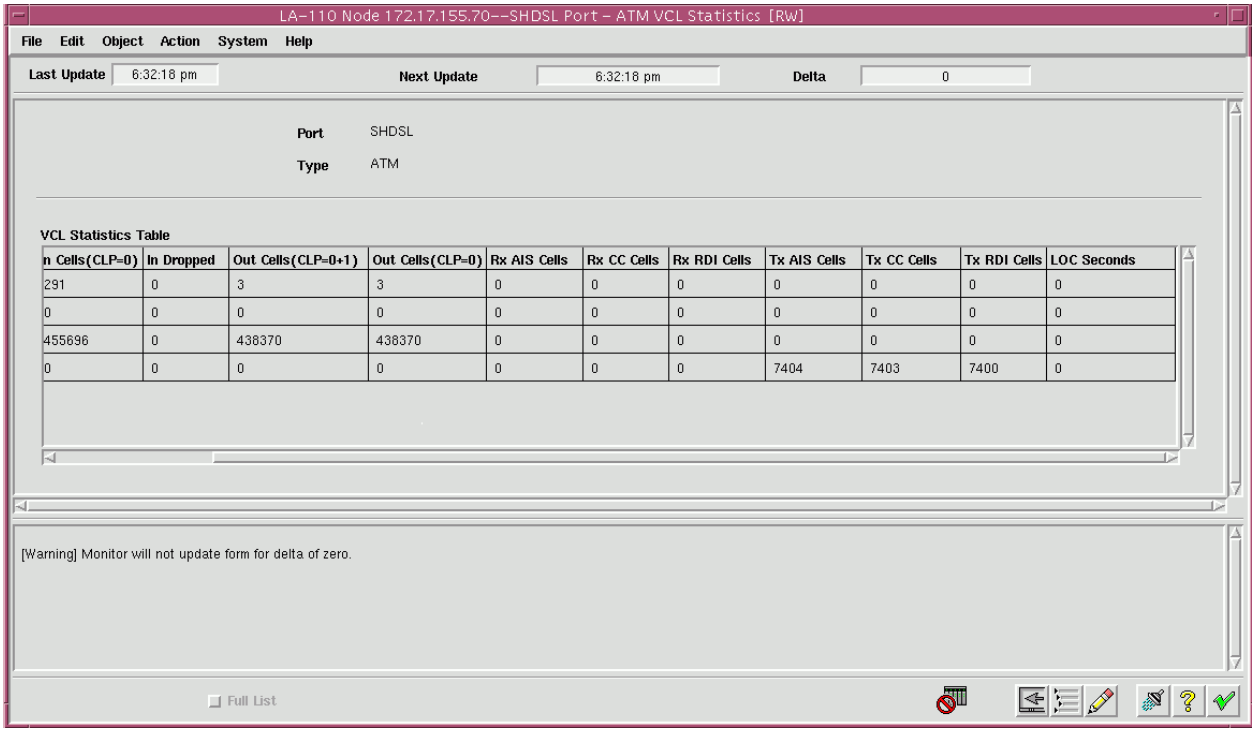
Parameter	Remarks
In Unknown Protocols	For packet-oriented interfaces, the number of packets received via the interface which was discarded because of an unknown or unsupported protocol. For character-oriented or fixed-length interfaces that support protocol multiplexing the number of transmission units received via the interface which were discarded because of an unknown or unsupported protocol. For any interface that does not support protocol multiplexing, this counter will always be zero. Read-only

VCL Statistics

➤ **To view VCL statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > ATM Layer > VCL Statistics.**.

  A Monitor form appears, displaying the VCL statistics results as shown in *Figure 4-48* and as listed in *Table 4-38*.


LA-110 Node 172.17.155.70--SHDSL Port – ATM VCL Statistics [RW]
File Edit Object Action System Help
Last Update 6:32:18 pm
Next Update 6:32:18 pm
Delta 0
Port SHDSL
Type ATM
VCL Statistics Table
[Warning] Monitor will not update form for delta of zero.
Full List

In Cells(CLP=0)	In Dropped	Out Cells(CLP=0+1)	Out Cells(CLP=0)	Rx AIS Cells	Rx CC Cells	Rx RDI Cells	Tx AIS Cells	Tx CC Cells	Tx RDI Cells	LOC Seconds
291	0	3	3	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
455696	0	438370	438370	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7404	7403	7400	0

Figure 4-48. SHDSL Port – ATM Layer – VCL Statistics

Table 4-38. SHDSL Port – ATM Layer – VCL Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **ATM** Read-only
VPI	The VPI value of the VCL. Read-only
VCI	The VCI value of the VCL Read-only
In Cells (CLP=0+1)	The total number of cells received with correct HECs. Read-only
In Cells (CLP=0)	The number of cells received with correct HECs and CLP=0. Read-only
In Dropped	The number of cells, in ingress direction, discarded due to policing violation Read-only
Out Cells (CLP=0+1)	The total number of cells transmitted. Read-only
Out Cells (CLP=0)	The number of cells transmitted with CLP=0. Read-only
Rx AIS Cells	Total number of AIS cells received on the VC. Read-only
Rx CC Cells	Total number of Continuity Check cells that were received on the VC. Read-only
Rx RDI Cells	Total number of RDI cells received on a VC. Read-only
Tx AIS Cells	Total number of AIS cells that were transmitted on a VC. Read-only
Tx CC Cells	Total number of continuity check cells transmitted on a VC (when there is no data cells and the connection is in 'source' continuity check mode). Read-only

Table 4-38. SHDSL Port – ATM Layer – VCL Statistics Parameters (Cont.)

Parameter	Remarks
Tx RDI Cells	Total number of RDI cells transmitted on a VC. Read-only
LOC Seconds	Total number of seconds during which there was loss of continuity on the VC - no data and no continuity check cells were received on the VC whilst it was in 'sink' continuity check mode. Read-only

Viewing SHDSL AAL1 statistics

Basic tasks include:

- Viewing interface statistics
- Viewing VCC statistics.

Interface Statistics

➤ **To view AAL1 interface statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > AAL1 > Interface Statistics.**

  A Monitor form appears, displaying the AAL1 interface statistics results as shown in *Figure 4-49* and as listed in *Table 4-39*.

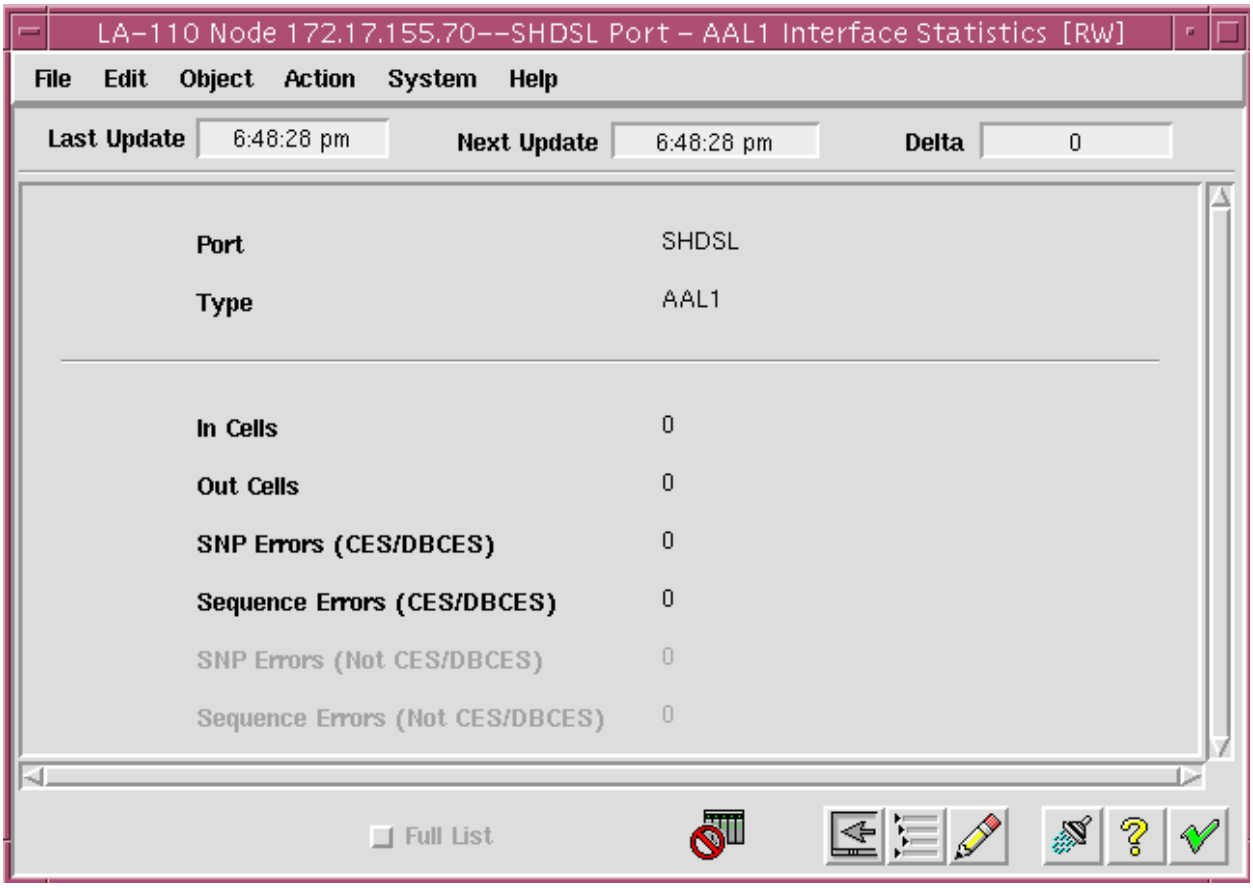


Figure 4-49. SHDSL Port – AAL1 – Interface Statistics

Table 4-39. SHDSL Port – AAL1 – Interface Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **AAL1** Read-only
In Cells	The total number of octets received on the interface, including framing characters. Read-only
Out Cells	The total number of octets transmitted out of the interface, including framing characters. Read-only
SNP Errors (CES/DBCES)	The total number of SNP errors (including CES/DBCES). Read-only
Sequence Errors (CES/DBCES)	The total number of sequence errors (including CES/DBCES). Read-only

Table 4-39. SHDSL Port – AAL1 – Interface Statistics Parameters (Cont.)

Parameter	Remarks
If there are no transparent AAL1 cross-connections, the following fields are disabled.	
SNP Errors (Not CES/DBCES)	The total number of SNP errors (not including CES/DBCES). Read-only
Sequence Errors (Not CES/DBCES)	The total number of sequence errors (not including CES/DBCES). Read-only

VCC Statistics

➤ **To view AAL1 VCC statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > AAL1 > VCC Statistics.**

  A Monitor form appears, displaying the AAL1 VCC statistics results, including two tables, one for CES/DBCES and one for transparent connections , as shown in *Figure 4-50* and as listed in *Table 4-40*.

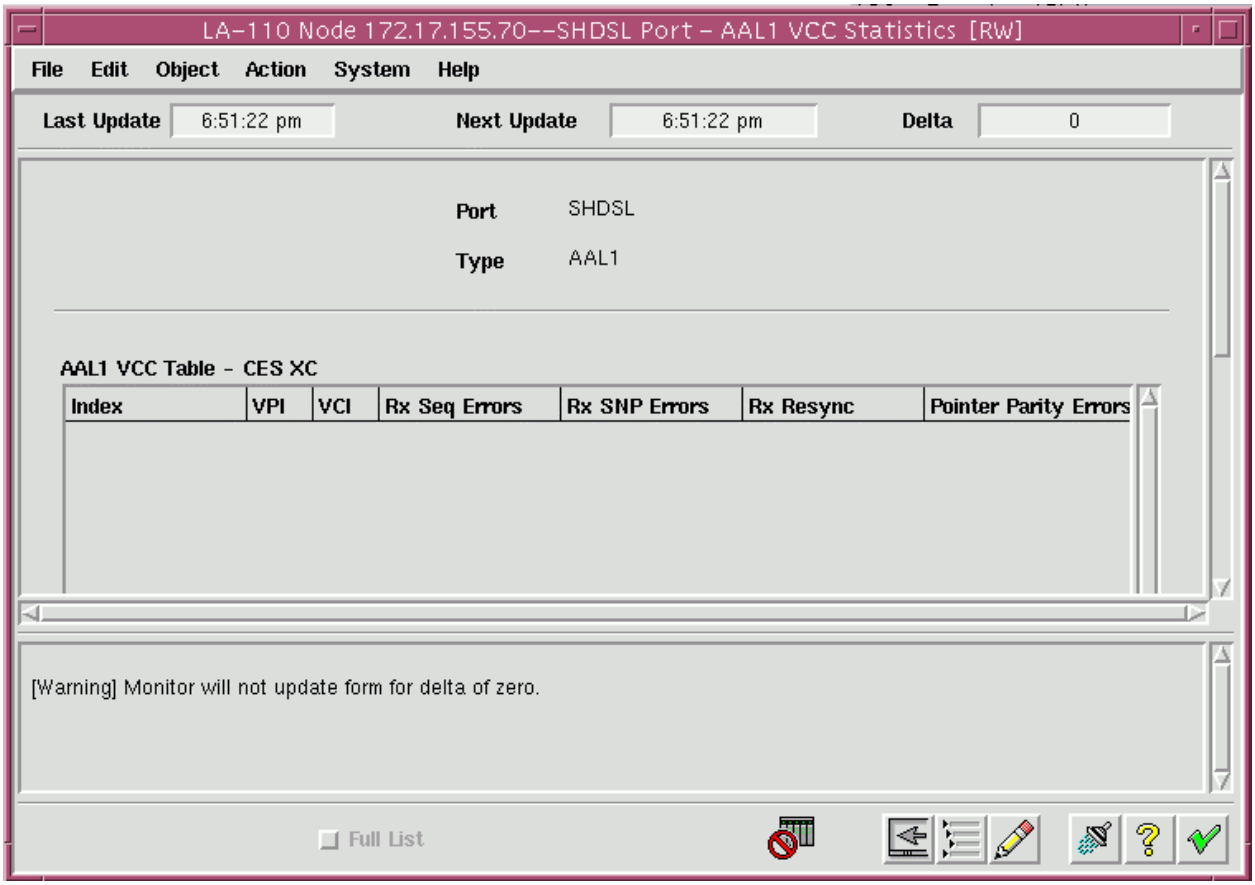

LA-110 Node 172.17.155.70--SHDSL Port – AAL1 VCC Statistics [RW]
File Edit Object Action System Help
Last Update 6:51:22 pm
Next Update 6:51:22 pm
Delta 0
Port SHDSL
Type AAL1
AAL1 VCC Table - CES XC
Index VPI VCI Rx Seq Errors Rx SNP Errors Rx Resync Pointer Parity Errors
[Warning] Monitor will not update form for delta of zero.
Full List

Figure 4-50. SHDSL Port – AAL1 – VCC Statistics

Table 4-40. SHDSL Port – AAL1 – VCC Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **AAL1** Read-only
AAL1 VCC Table – CES XC / Transparent XC	
VPI	The VPI value of the AAL1 VCC. Read-only
VCI	The VCI value of the AAL1 VCC. Read-only
Rx Seq Errors	Total number of sequence numbering errors detected in the cells received for the corresponding connection. Read-only
Rx SNP Errors	Total number of SNP errors detected in the cells received for the corresponding connection. Read-only
Rx Resync	Total number of resynchronization errors that occurred for the corresponding connection. Read-only *Not applicable for AAL1 transparent XCs*
Pointer Parity Errors	Total number of pointer errors detected in the cells received for the corresponding connection. Read-only *Not applicable for AAL1 transparent XCs*

Viewing SHDSL AAL5 statistics

Basic tasks include:

- Viewing interface statistics
- Viewing VCC statistics.

Interface Statistics

➤ **To view AAL5 interface statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > AAL5 > Interface Statistics.**

  A Monitor form appears, displaying the AAL5 interface statistics results as shown in *Figure 4-51* and as listed in *Table 4-41*.

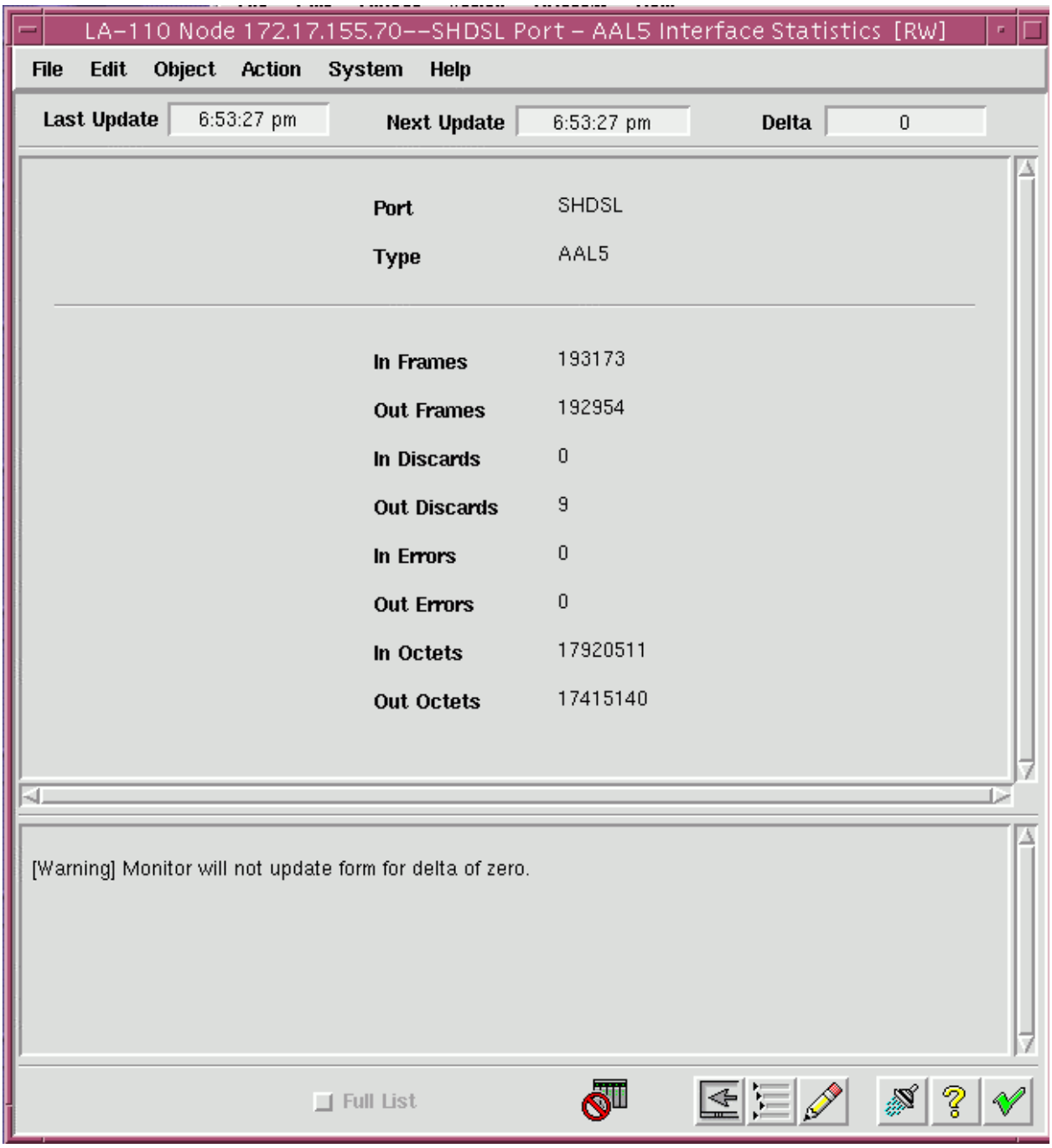


Figure 4-51. SHDSL Port – AAL5 – Interface Statistics

Table 4-41. SHDSL Port – AAL5 – Interface Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **AAL5** Read-only
In Frames	The number of packets, delivered by this sub-layer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sub-layer. Read-only
Out Frames	The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. Read-only
In Discards	The total number of frames discarded during processing by the receive path. Read-only
Out Discards	The total number of frames discarded during processing by the transmit path. Read-only
In Errors	For packet-oriented interfaces, the number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol. For character-oriented or fixed-length interfaces, the number of inbound transmission units that contained errors preventing them from being deliverable to a higher-layer protocol. Read-only
Out Errors	For packet-oriented interfaces, the number of outbound packets that could not be transmitted because of errors. For character-oriented or fixed-length interfaces, the number of outbound transmission units that could not be transmitted because of errors. Read-only
In Octets	The total number of octets received on the interface, including framing characters. Read-only
Out Octets	The total number of octets transmitted out of the interface, including framing characters. Read-only

VCC Statistics

➤ **To view AAL5 VCC statistics of the SHDSL port:**

- In the LA-110 Node Draw, select the SHDSL port, right-click and select **Monitor > AAL5 > VCC Statistics.**

  A Monitor form appears, displaying the AAL5 VCC statistics results as shown in *Figure 4-52* and as listed in *Table 4-42*.

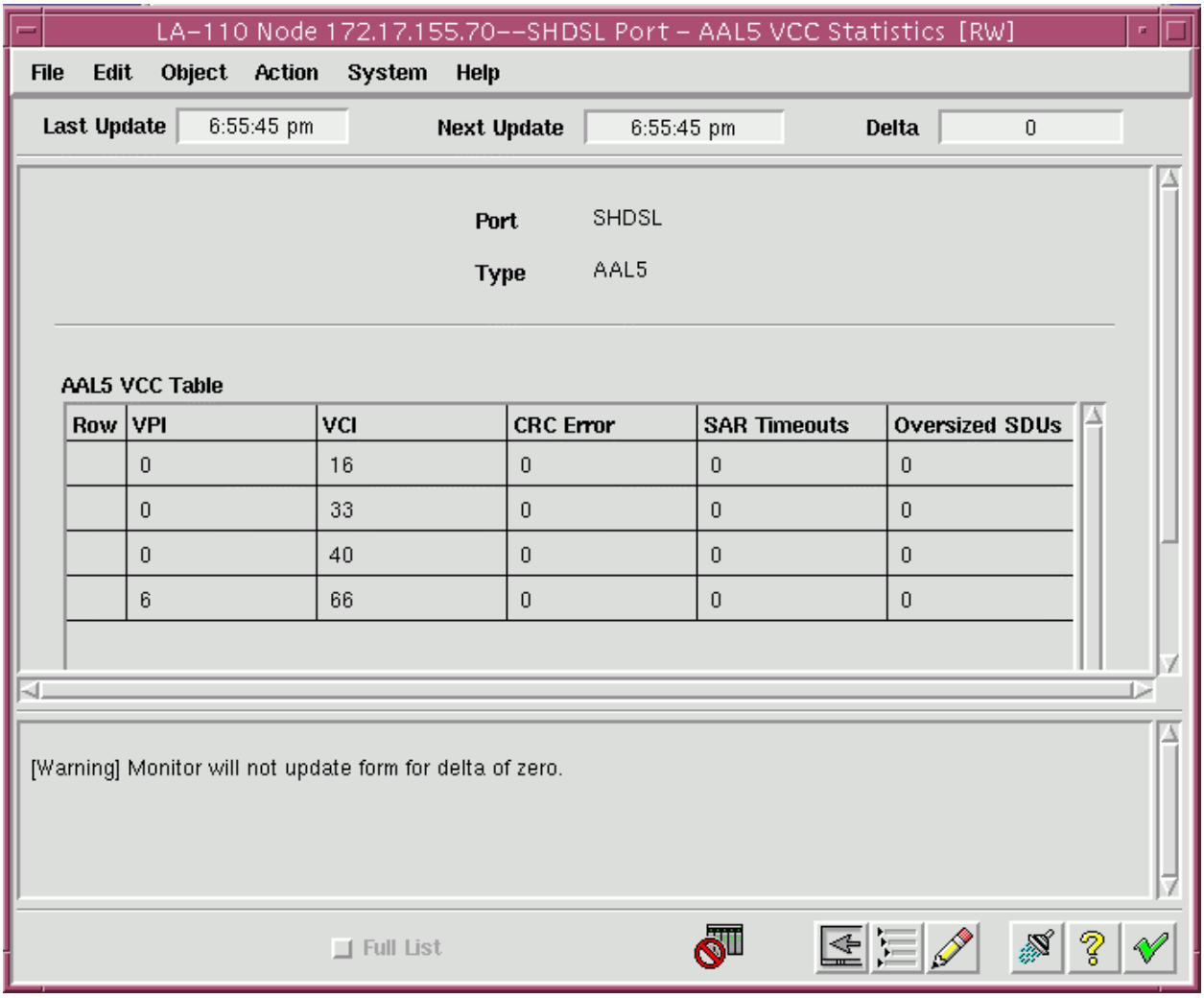

LA-110 Node 172.17.155.70--SHDSL Port – AAL5 VCC Statistics [RW]
File Edit Object Action System Help
Last Update 6:55:45 pm
Next Update 6:55:45 pm
Delta 0
Port SHDSL
Type AAL5
AAL5 VCC Table
Row VPI VCI CRC Error SAR Timeouts Oversized SDUs
0 16 0 0 0
0 33 0 0 0
0 40 0 0 0
6 66 0 0 0
[Warning] Monitor will not update form for delta of zero.
Full List

Figure 4-52. SHDSL Port – AAL5 – VCC Statistics

Table 4-42. SHDSL Port – AAL5 – VCC Statistics Parameters

Parameter	Remarks
Port	The selected port **SHDSL** Read-only
Type	The interface type **AAL5** Read-only
AAL5 VCC Table	
VPI	The VPI value of the AAL5 VCC. Read-only
VCI	The VCI value of the AAL5 VCC. Read-only
CRC Error	The number of AAL5 CPCS PDUs received with CRC-32 errors on this AAL5 VCC at the interface associated with an AAL5 entity. Read-only
SAR Timeouts	The number of partially re-assembled AAL5 CPCS PDUs which were discarded on this AAL5 VCC at the interface associated with an AAL5 entity because they were not fully re-assembled within the required time period. If the re-assembly timer is not supported, then this object contains a zero value. Read-only
Oversized SDUs	The number of AAL5 CPCS PDUs discarded on this AAL5 VCC at the interface associated with an AAL5 entity because the AAL5 SDUs were too large. Read-only

4.13 CES E1 Port Monitoring

LA-110 MD allows you to view CES E1 port performance statistics.

Basic tasks include:

- Viewing current data
- Viewing interval data.

Current Data Statistics

➤ **To view current day data statistics of the CES E1 port:**

- In the LA-110 Node Draw, select the CES E1 port, right-click and select **Monitor > Current Data.**

  A Monitor form appears, displaying the CES E1 port current data statistics results as shown in *Figure 4-53* and as listed in *Table 4-43*.

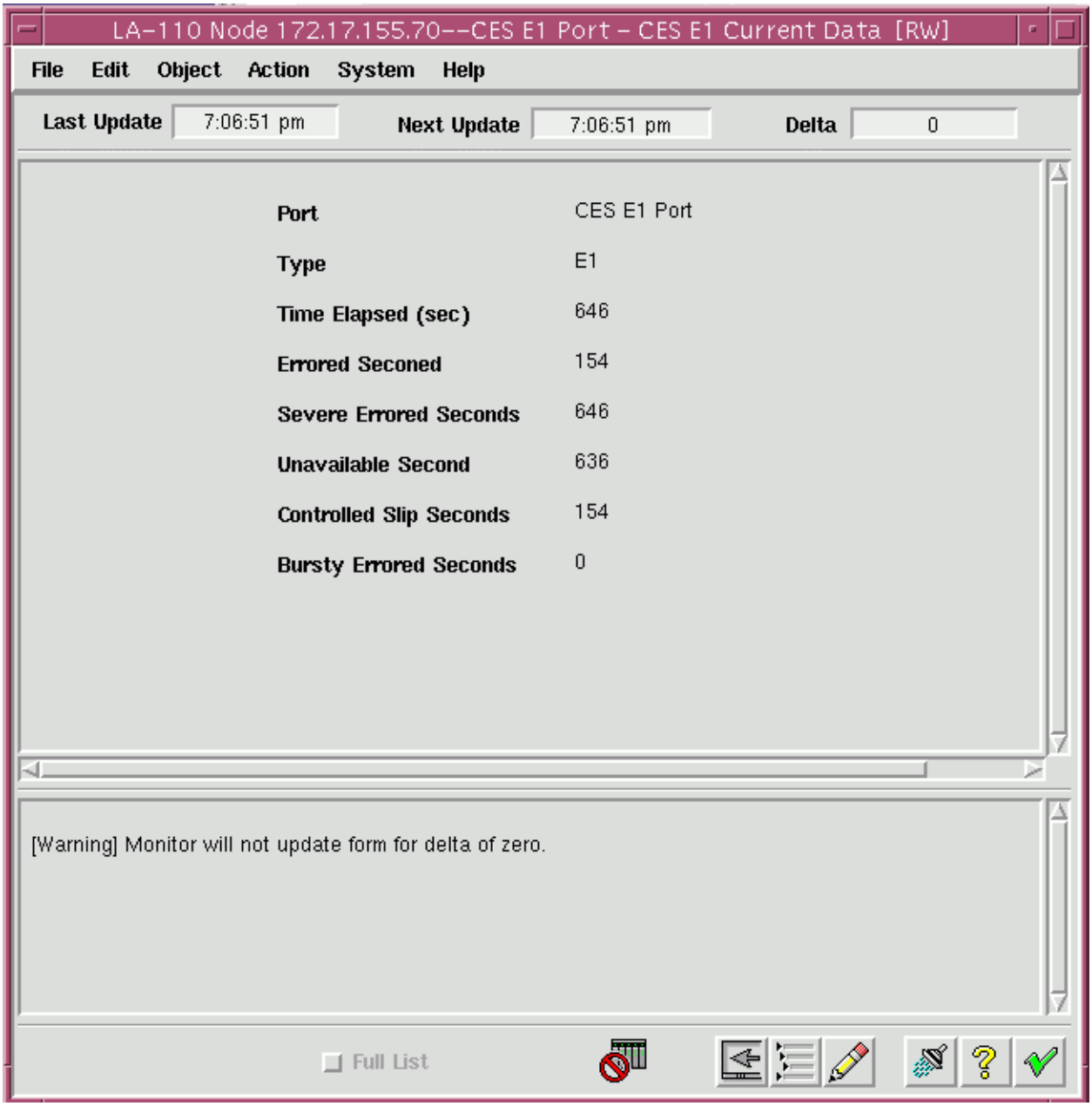


Figure 4-53. CES E1 Port – Current Data Statistics

Table 4-43. CES E1 Port – Current Data Statistics Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Type	The interface type **E1** Read-only

Table 4-43. CES E1 Port – Current Data Statistics Parameters (Cont.)

Parameter	Remarks
Time Elapsed	The time passed since the beginning of the current 15 minute interval. Read-only
Errored Seconds	The number of Errored Seconds. Read-only
Severely Errored Seconds (SESs)	The number of Severely Errored Seconds. Read-only
Unavailable Seconds (UASs)	The number of Unavailable Seconds. Read-only
Controlled Slip Seconds	The number of Controlled Slip Seconds. Read-only
Bursty Errored Seconds	The number of Bursty Errored Seconds. Read-only
Loss of Frame Count	The number of Loss of Frame events measured that were encountered in the current 15-minute interval. Read-only

Intervals Data Statistics

➤ **To view intervals data statistics of the CES E1 port:**

- In the LA-110 Node Draw, select the CES E1 port, right-click and select **Monitor > Intervals Data.**

  A Monitor form appears, displaying the CES E1 port intervals data statistics results as shown in *Figure 4-44* and as listed in *Table 4-35*.

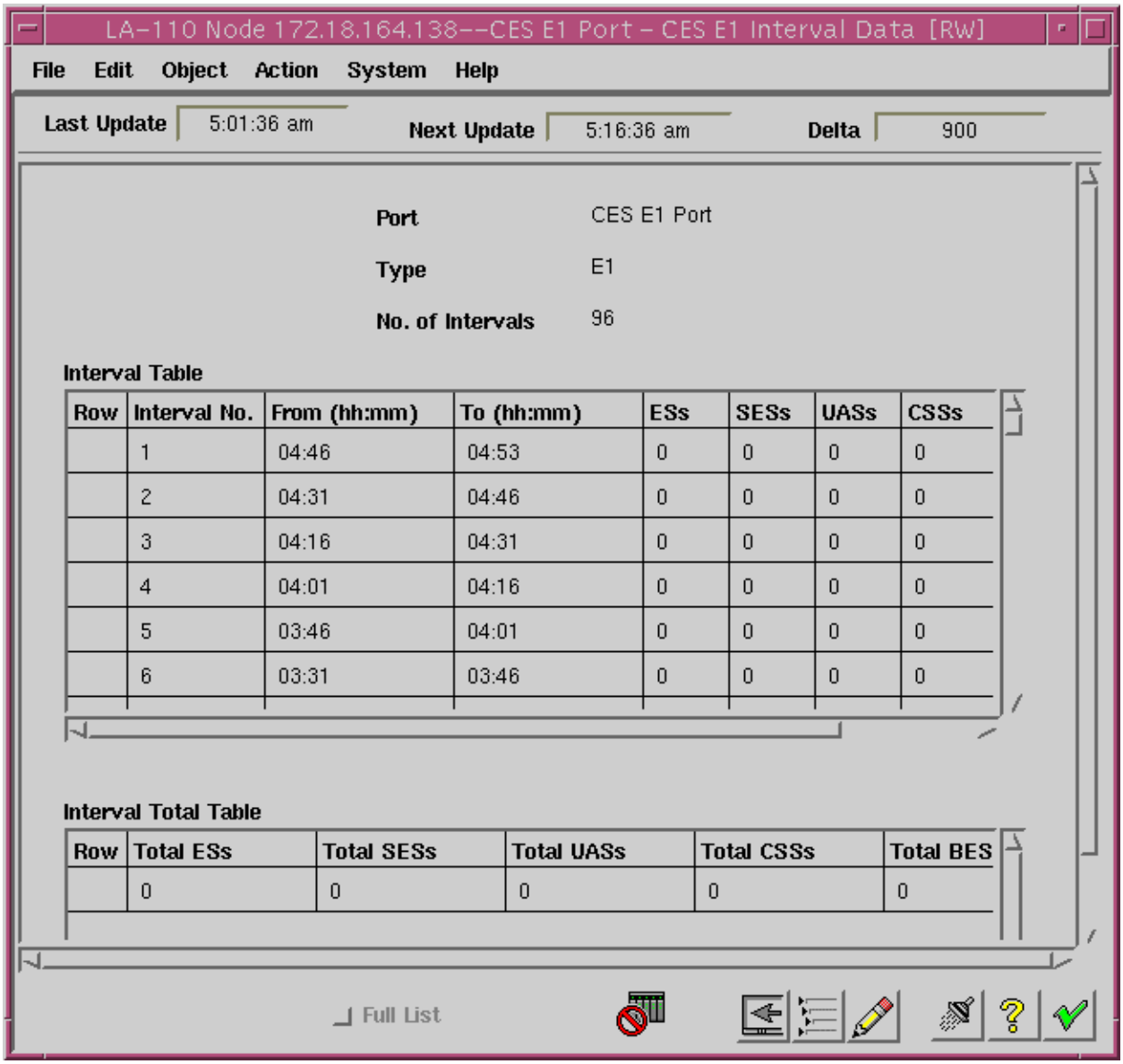

LA-110 Node 172.18.164.138--CES E1 Port – CES E1 Interval Data [RW]
File Edit Object Action System Help
Last Update 5:01:36 am
Next Update 5:16:36 am
Delta 900
Port CES E1 Port
Type E1
No. of Intervals 96
Interval Table
Row | Interval No. | From (hh:mm) | To (hh:mm) | ESs | SESs | UASs | CSSs
1 | 04:46 | 04:53 | 0 | 0 | 0 | 0
2 | 04:31 | 04:46 | 0 | 0 | 0 | 0
3 | 04:16 | 04:31 | 0 | 0 | 0 | 0
4 | 04:01 | 04:16 | 0 | 0 | 0 | 0
5 | 03:46 | 04:01 | 0 | 0 | 0 | 0
6 | 03:31 | 03:46 | 0 | 0 | 0 | 0
Interval Total Table
Row | Total ESs | Total SESs | Total UASs | Total CSSs | Total BES
0 | 0 | 0 | 0 | 0
Full List

Figure 4-54. CES E1 Port – Intervals Data Statistics

Table 4-44. CES E1 Port – Intervals Data Statistics Parameters

Parameter	Remarks
Port	The selected port **CES E1** Read-only
Type	The interface type **CES E1** Read-only
No. of Intervals	The number of intervals. Read-only

Table 4-44. CES E1 Port – Intervals Data Statistics Parameters (Cont.)

Parameter	Remarks
Interval Table	
Interval No.	The number of intervals. **1..96** Read-only
From (hh:mm)	The start time of the interval in hours and minutes. Read-only
To (hh:mm)	The end time of the interval in hours and minutes. Read-only
ESs	The number of Errored Seconds. Read-only
SESs	The number of Severely Errored Seconds. Read-only
UASs	The number of Unavailable Seconds. Read-only
CSSs	The number of Controlled Slip Seconds. Read-only
BESs	The number of Bursty Errored Seconds. Read-only
Interval Total Table	
Total ESs	The number of Errored Seconds encountered by a CES E1 interface in the previous 24 hour interval. Read-only
Total SESs	The number of Severely Errored Seconds encountered by a CES E1 interface in the previous 24 hour interval. Read-only
Total UASs	The number of Unavailable Seconds encountered by a CES E1 interface in the previous 24 hour interval. Read-only
Total CSSs	The number of Controlled Slip Seconds encountered by a CES E1 interface in the previous 24 hour interval. Read-only
Total BESs	The number of Bursty Errored Seconds encountered by a CES E1 interface in the previous 24 hour interval. Read-only

Chapter 5

Cross Connection

This chapter discusses how to use LA-110 MD to add, configure, and monitor cross connections in the LA-110 node.

Managing cross connections includes the following tasks:

- Using the LA-110 Navigator to perform operations on connections
- Adding cross connections
- Viewing and modifying connections
- Performance monitoring.

Connections are added, deleted and configured through the Navigator tool only.

5.1 Adding Cross Connections

This section discusses how to use LA-110 MD to add cross connections to the LA-110 node.

It is possible to add the following LA-110 connections:

- LAN VC Connections
- CES VC Connections
- FR VC Connections
- AAL1 Stream VC Connections.

Note *You can expand the Connections container in the Navigator to view the available connection types. LAN and CES are always available. FR and AAL1 Stream availability is contingent upon the FR port application mode.*

Note *When a selected container reaches the maximum number of connections, the Add Component menu will be disabled. For line type unframed MAX = 1, for CES E1 connection types MAX = 16.*

LAN VC Connection

You can create and delete LAN Connections in the 5520 Navigator. The LAN Connection container includes two connections that already exist in the device, ILMI and management connections. The Delete and Edit options are disabled for these connections. For instructions how to delete connections, see *Deleting Cross Connections*.

➤ **To add a LAN VCL cross connection:**

1. In the Navigator, double-click the **Connections container** to display the **LAN VC Connection**.
2. Select the **LAN VC Connections container,** right-click and select **Add Component > Cross Connection > Add LAN VCL**.

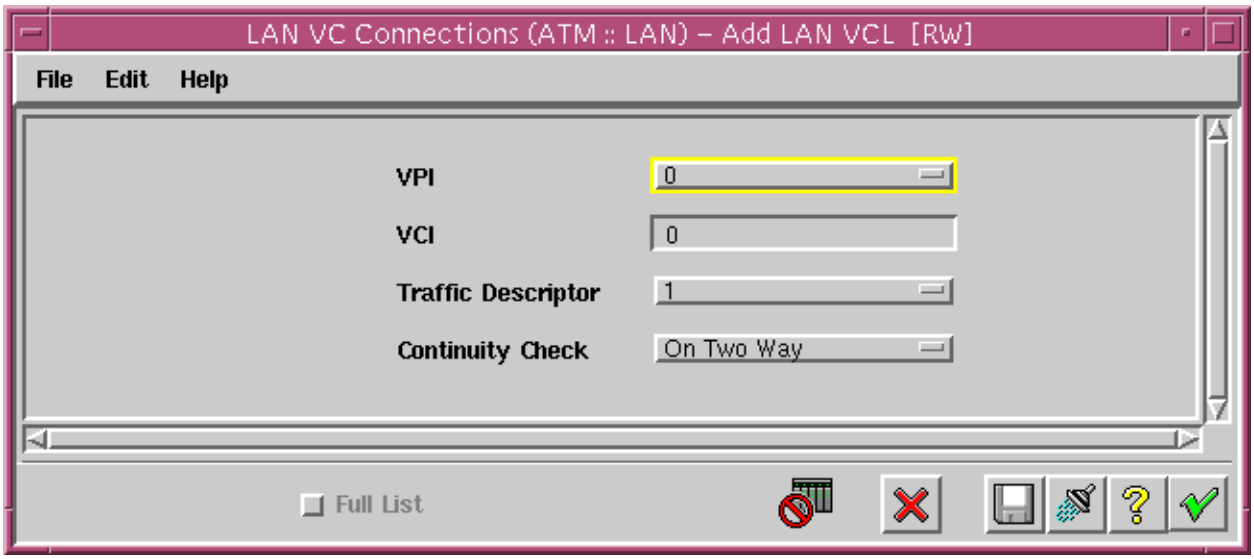


Figure 5-1. Add LAN VCL Connection

3. Fill in the fields, as described in *Table 5-1*.
4. Click <**Save**> to save the changes.

Table 5-1. Add LAN VCL Connection Parameters

Parameter	Valid Ranges
VPI	The VPI value of the VCL. **0…31**
VCI	The VCI value of the VCL. **0..255**
Traffic Descriptor	Identifies the row in the Traffic Descriptor (TD) Table which applies to the transmit direction of the VCL. **1…200** (values available as defined in TD table)
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only

CES VC Connection

➤ **To add a CES VC cross connection:**

1. Verify bundles are associated with timeslots (see the section, "Bundles Configuration" (for CES E1 ports) in the "Port Configuration and Monitoring" chapter.)

2. In the Navigator, double-click on **Connections** container to display the **CES VC Connection** option.
3. Select **CES VC Connection**, right-click and select **Add Component > Cross Connection > CES Connection**.

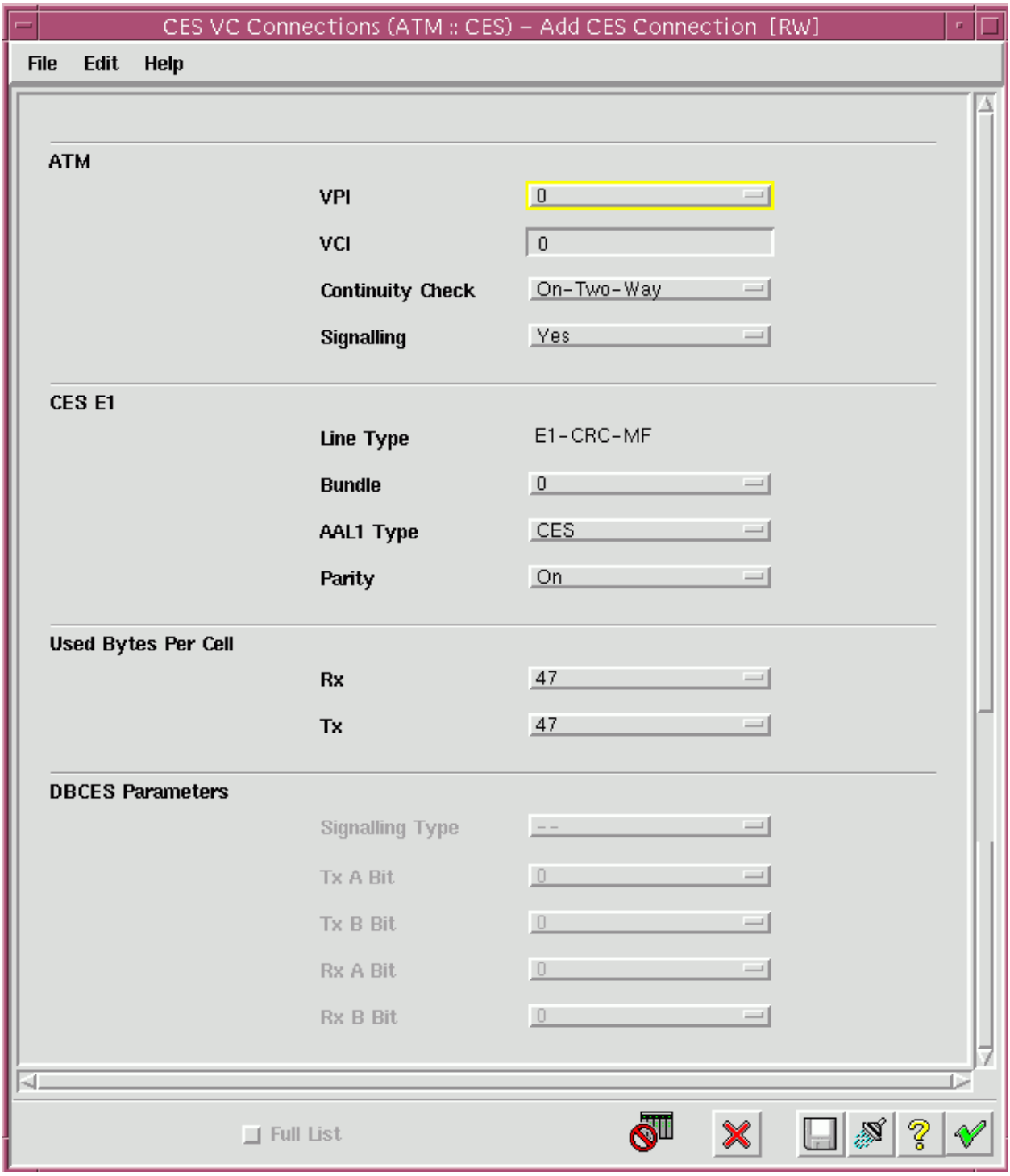


Figure 5-2. Add CES Connection

4. Fill in the fields, as described in *Table 5-2*.
5. Click <**Save**> to save the changes.

Table 5-2. Add CES Connection Parameters

Parameter	Valid Ranges
ATM Endpoint:	
VPI	The VPI value of the ATM endpoint. **0…31**
VCI	The VCI value of the ATM endpoint **0…255**
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only
Signaling	**Yes, No** If AAL1 type is transparent, set to No and disabled signaling.
CES E1:	
Line Type	**E1, E1-CRC, E1-MF, E1-CRC-MFE1 Unframed**
Bundle	**Bundle 1 to Bundle 31 for E1**
AAL1 Type	**CES, DBCES, Transparent**
Parity	**Off, On** *Disabled if AAL1 Type is Transparent*
Used Bytes Per Cell	
Rx	Specifies the number of payload bytes to be expected in the cells received by the new connection. Remaining bytes are assumed to be padding bytes and are therefore discarded.
Tx	Specifies the number of payload bytes to be inserted in the cells before transmitting it. After the specified number of payload is collected, the remaining bytes in the cell are filled with padding, and the cell is immediately transmitted toward the network. This parameter enables the user to reduce the delay caused by the cell filling in applications that cannot tolerate long delays.
The following fields are disabled if AAL1 Type is not DBCES.	
DBCES Parameters	
Signaling Type	**E&M/PLAR, FXO-Loop Start, FXS-Loop Start, FXO-Ground Start, FXS-Ground Start, R2, Other**
The following fields are enabled only if Signaling Type is **Other**. All bits must be 0 for CES connection	
Tx A Bit	**0, 1, or X**
Tx B Bit	**0, 1, or X**
Rx A Bit	**0, 1, or X**
Rx B Bit	**0, 1, or X**

FR VC Connection

➤ **To add a Data FR VC cross connection:**

1. In the Navigator, double-click the **Connections** container to display the **FR VC Connection** option.
2. Select **FR VC Connection,** right-click and select **Add Component > Cross Connection > FR Connection**.

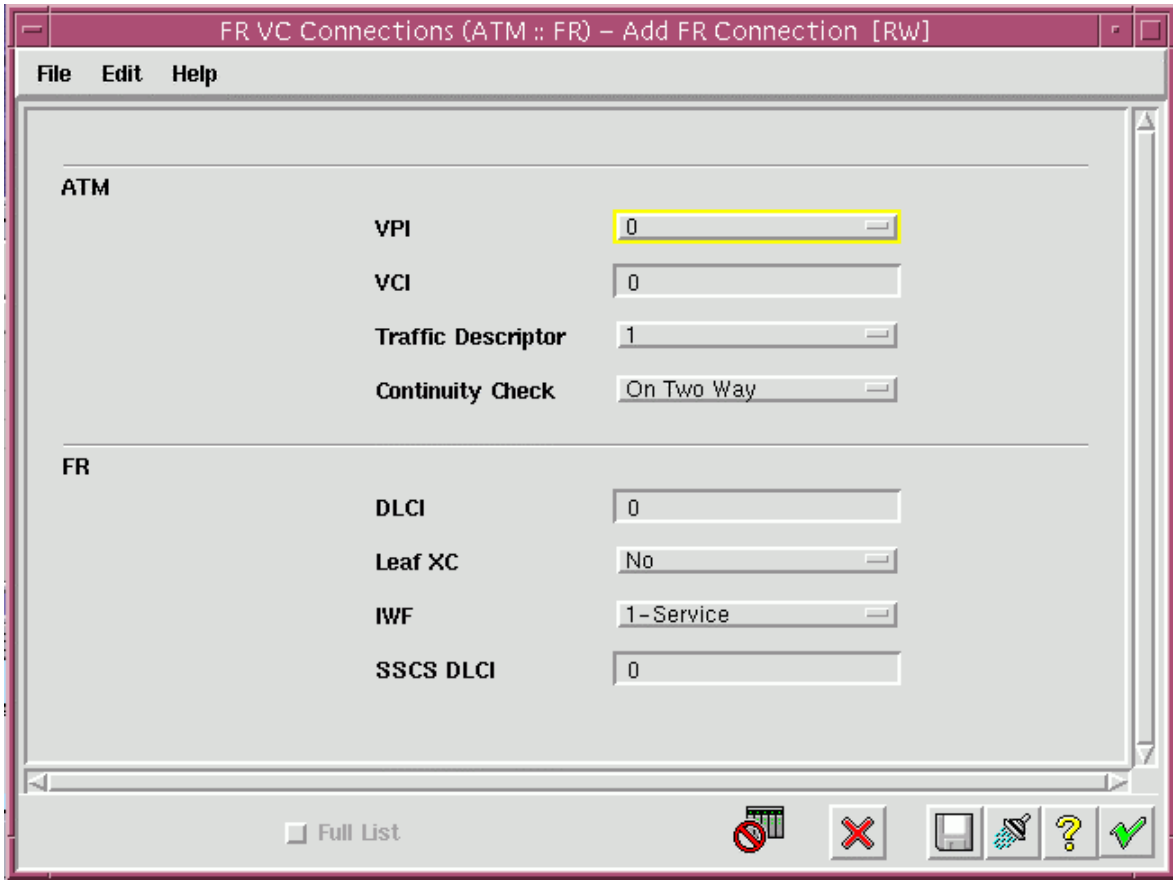


Figure 5-3. Add FR VC Connection

3. Fill in the fields, as described in *Table 5-3*.
4. Click <**Save**> to save the changes.

Table 5-3. Add FR VC Connections Parameters

Parameter	Valid Ranges
VPI	The VPI value of the ATM end point. **0..31**
VCI	The VCI value of the ATM end point. **0..255**
Traffic Descriptor	Identifies the row in the Traffic Descriptor (TD). **1…200** (values available as defined in TD table)

Table 5-3. Add FR VC Connections Parameters (Cont.)

Parameter	Valid Ranges
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only
FR:	
DLCI	**16–991**
Leaf XC	**Yes, No**
IWF	The IWF mode. **1…42** For each ID, the corresponding type will appear.
SSCS DLCI	Allows configuration of the FR SSCS DLCI that is transferred to the remote FR unit **16–991, 1022** This parameter is only available when IWF (Function Mode) is set to **Network**.

AAL1 Stream VC Connection

➤ **To add an AAL1 Stream VC cross connection:**

1. In the Navigator, double-click the **Connections** container to display the **AAL1 Stream VC Connection** option.
2. Select **AAL1 Stream VC Connection,** right-click and select **Add Component > Cross Connection > AAL1 Stream Connection**.

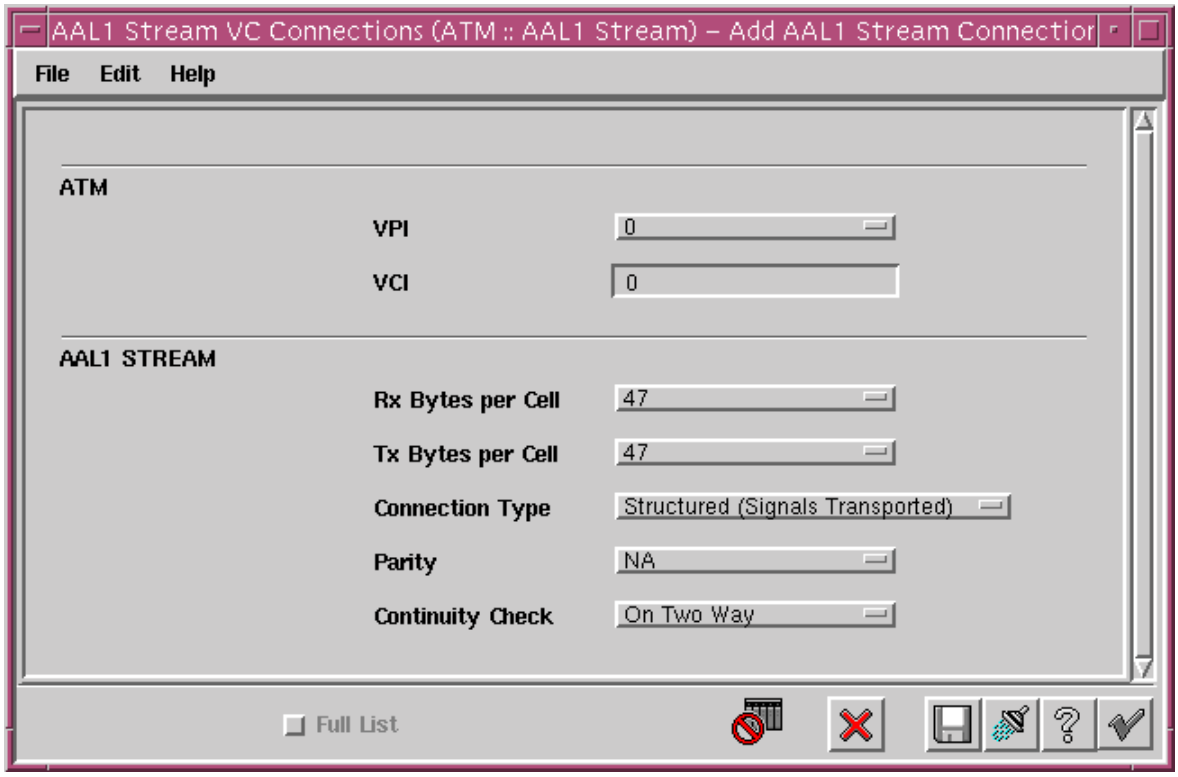


Figure 5-4. AAL1 Stream VC Connection

3. Fill in the fields, as described in *Table 5-4*.
4. Click <**Save**> to save the changes.

Table 5-4. AAL1 Stream VC Connections Parameters

Parameter	Valid Ranges/Remarks
ATM	
VPI	The VPI value of the ATM end point. **0…31**
VCI	The VCI value of the ATM end point. **0…255**
AAL1 Stream	
Rx Bytes per Cell	**10…47** (default)
Tx Bytes per Cell	**10…47** (default)
Connection Type	**Unstructured, Structured** The values depend on the port data Rate (64..2048 Kbps) and on the RTS DCD (on, off, or not applicable) Only "Structured (Signals Transported)" is visible, when the RTS DCD is 1 (ignore signal) or 2 (obey signal). For other values of RTS DCD, display values depends on Rate = 64 K (r64KBps) possible values are: • Structured with Pointer, • Structured without Pointer • Structured (Signals Transported) For Rate <> 64 Kbps, possible values are: • Unstructured, • Structured, • Structured (Signals Transport
Pointer Parity	**Not Applicable, Off, On** List of possible values depend on Connection Type, as follows: • Unstructured: NA, • Structured: ON, OFF • Structure with Pointer: ON, OFF • Structured without Pointer: NA • Structured (Signals Transported): NA
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only

5.2 Configuring Cross Connections

The Navigator allows you to configure cross connections in the LA-110 node.

LAN VC Connections

Basic tasks include viewing and configuring:

- Connection Info
- VCL connections
- Loopback testing.

Connection Information

➤ **To view LAN VC connection information parameters:**

- In the Navigator, select the LAN VC Connections container, right-click and select **Configure > Connections Info**.

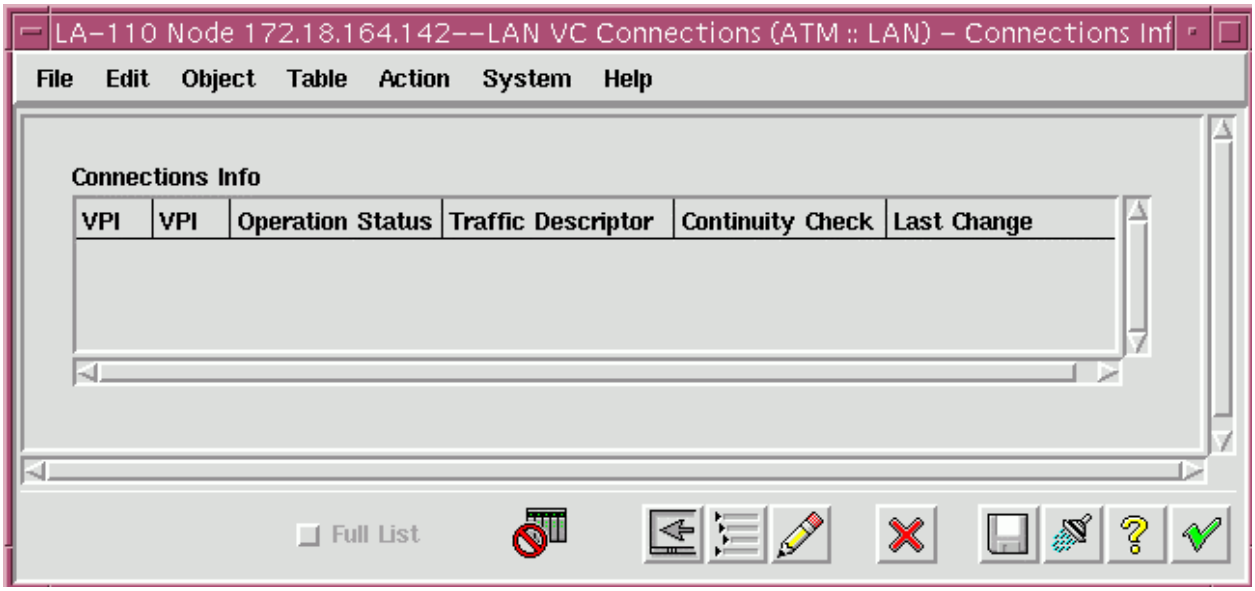


Figure 5-5. LAN VC Connections Info

Table 5-5. LAN VC Connections Info Parameters

Parameter	Valid Ranges/Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
Operation Status	**Up, Down**

Table 5-5. LAN VC Connections Info Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Traffic Descriptor	**1…200** Read-only
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only
The following fields are available only for Bridge VLAN Aware.	
Connected To	**Bridge Port #, Not Connected**
Priorities	**0…7**

VCL Connection

➤ **To edit a LAN VCL cross connection:**

1. In the Navigator, select the LAN Connection, right-click and select **Configure > Edit LAN VCL Connection**.

   The Edit LAN VCL Connection form opens in which you can connect the bridge port to the VCL and assign VLAN Priority to the connection. (This is only applicable to VLAN Aware mode.)

   An ATM Bridge Port can be connected to **up to three VCLs** according to the following conditions:

   - Each connection includes a VLAN Priority, which can be one or more values from a specified **VLAN Priority Range** (0…7).
   - Two connections of the same ATM Bridge Port CANNOT share the same VLAN Priority.

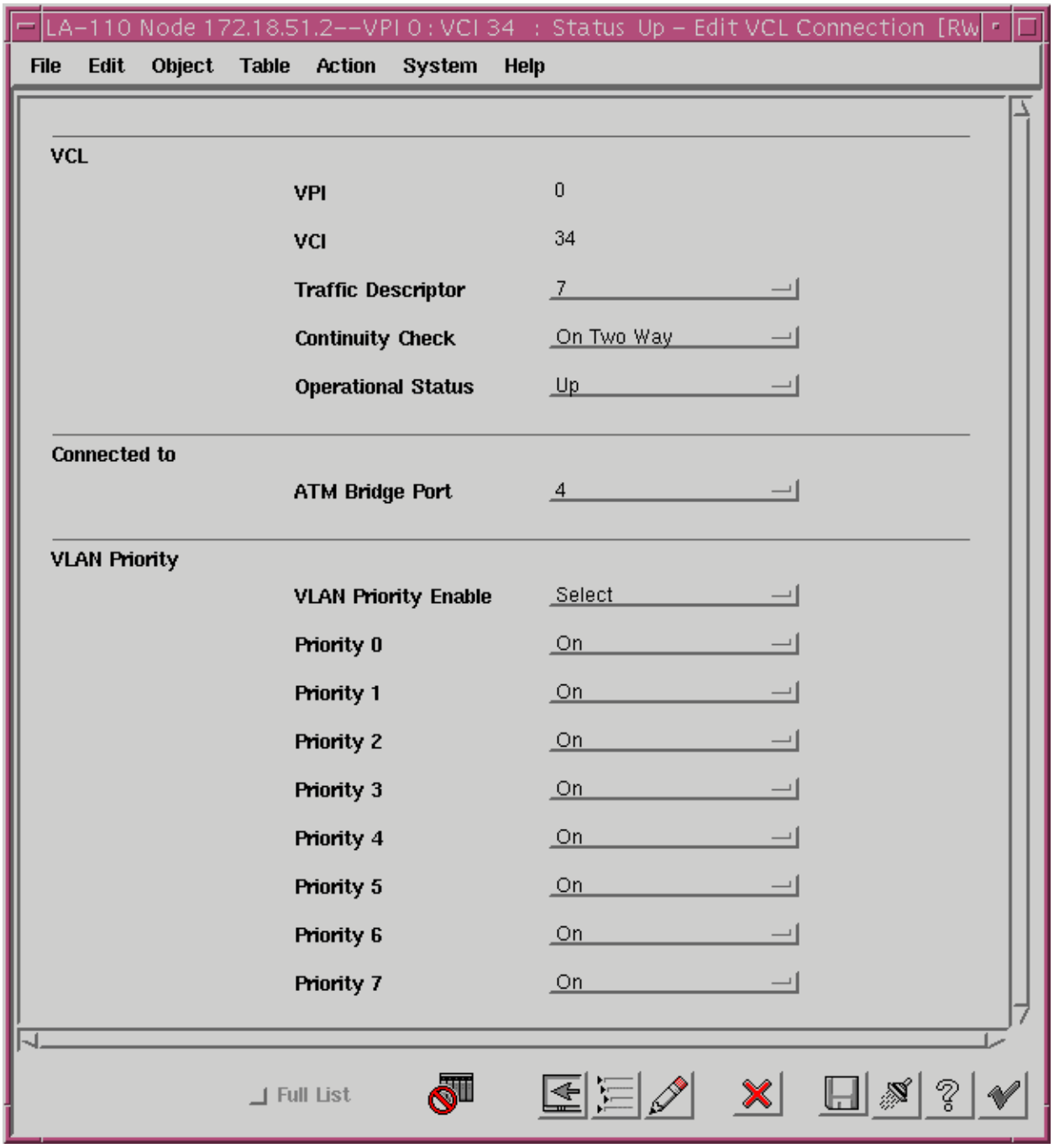


Figure 5-6. Edit VCL Connection

2. Fill in the fields, as described in *Table 5-6*.
3. Select the ATM Bridge Port and VLAN Priority.

Table 5-6. Edit VCL Connection Parameters

Parameter	Valid Ranges/Remarks
VPI	The VPI value of the VCL. **0…31** Read-only
VCI	The VCI value of the VCL. **0…255** Read-only
Traffic Descriptor	**1…200**
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink**
Operational Status	**Up, Down**
The following fields are available only for Bridge - VLAN Aware.	
Connected To	
ATM Bridge Port	**1…existing ATM Bridge port number, Not Connected**
VLAN Priority	
VLAN Priority Enable	**Select:** enables you to select any priority **All:** all priorities are selected. (Selectable if selected Bridge Port is not connected to **any** VCL or if selected Bridge Port is connected **only** to the VCL that is being edited now) **None:** this value is not selectable and will be displayed when "Not Connected" selected in "ATM Bridge Port" field
Priorities 0…7	**Free, On, N/A, Used.** If this priority is assigned to the selected VCL The value is "On". If this priority is assigned to another VCL other then the selected VCL Then the value is "Used – VPI/VCI " where VPI/VCI are of the assigned VCL. If this priority is not assigned to any of the existing VCLs The value is "Free". Only "Free" and "On" are selectable values The value "N/A" is not selectable and represents a new connection where the VLAN Priority field value is "All".

Loopback Testing

➤ **To configure LAN VC connection loopback testing:**

1. In the Navigator, select the LAN VC Connections container, right-click and select **Configure > Loopback Test.**

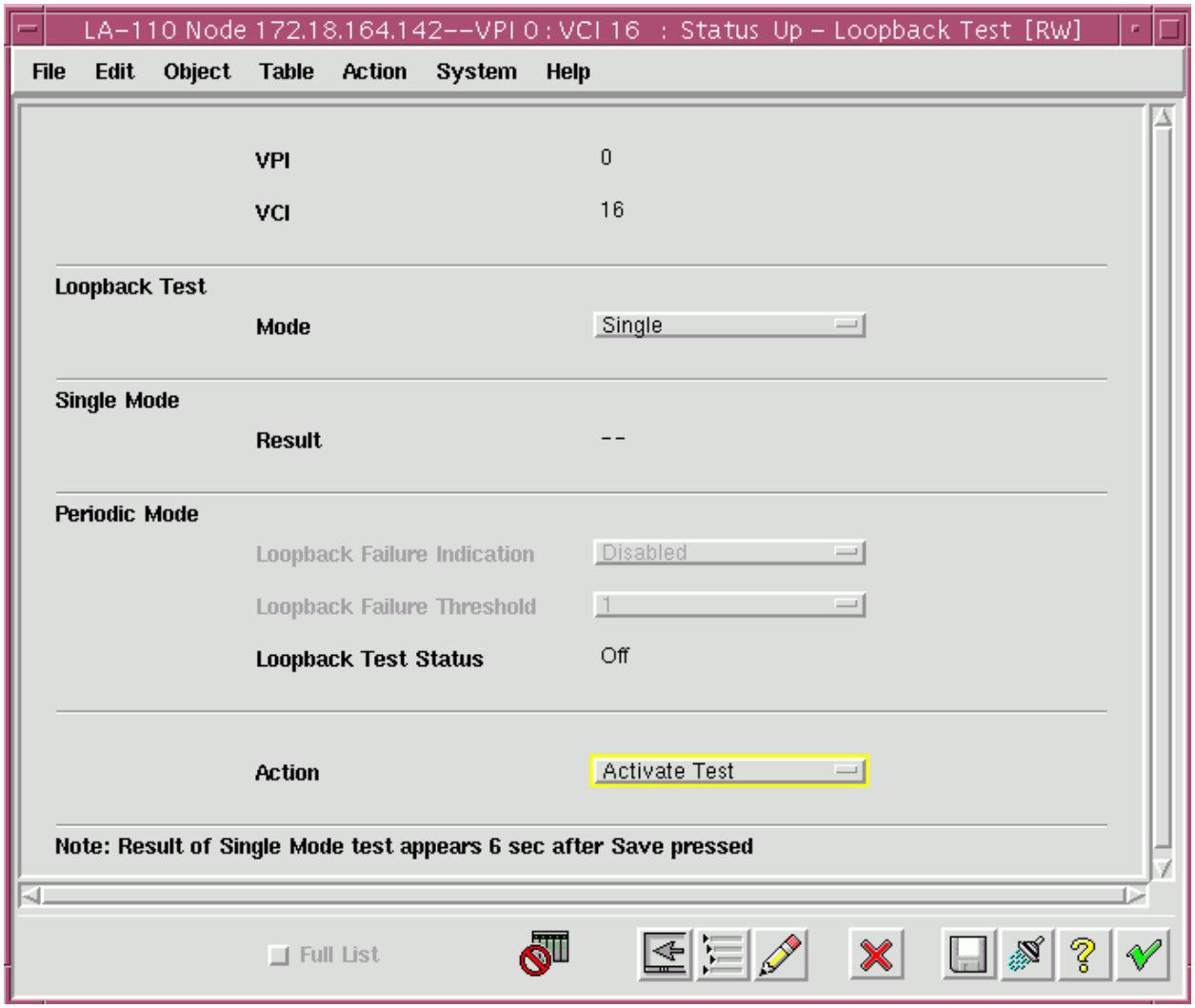

LA-110 Node 172.18.164.142--VPI 0 : VCI 16 : Status Up – Loopback Test [RW]
File Edit Object Table Action System Help
VPI 0
VCI 16
Loopback Test
Mode Single
Single Mode
Result --
Periodic Mode
Loopback Failure Indication Disabled
Loopback Failure Threshold 1
Loopback Test Status Off
Action Activate Test
Note: Result of Single Mode test appears 6 sec after Save pressed
Full List

Figure 5-7. LAN VC Connection – Loopback Test

2. Fill in the fields, as described in *Table 5-7*.
3. Click <**Save**> to save the changes.

   The result of Signal Mode test appears six seconds after the "Save" button is clicked.

Table 5-7. LAN VC Connection – Loopback Test Parameters

Parameter	Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
Loopback Test	
Mode	**Single, Periodic**
Single Mode	
Result	**OK, Failed**
Periodic Mode	
Loopback Failure Indication	**Disabled (default), Enabled**
Loopback Failure Threshold	**1 (default)…16** Enabled only if **Loopback Fail Indication** is enabled
Loopback Test Status	Activates a loopback test on the specified port. **None, Remote Loopback (RLB), Local Loopback (LLB)**
Action	Activates a loopback test on the specified port. **Activate Test, Stop Test**

CES VC Connections

Basic tasks include viewing and configuring:

- Connection Info
- Activating/deactivating connections
- Loopback testing.

Connection Information

➤ **To view CES VC connection information parameters:**

- In the Navigator, select the CES VC Connections container, right-click and select **Configure > Connections Info**.

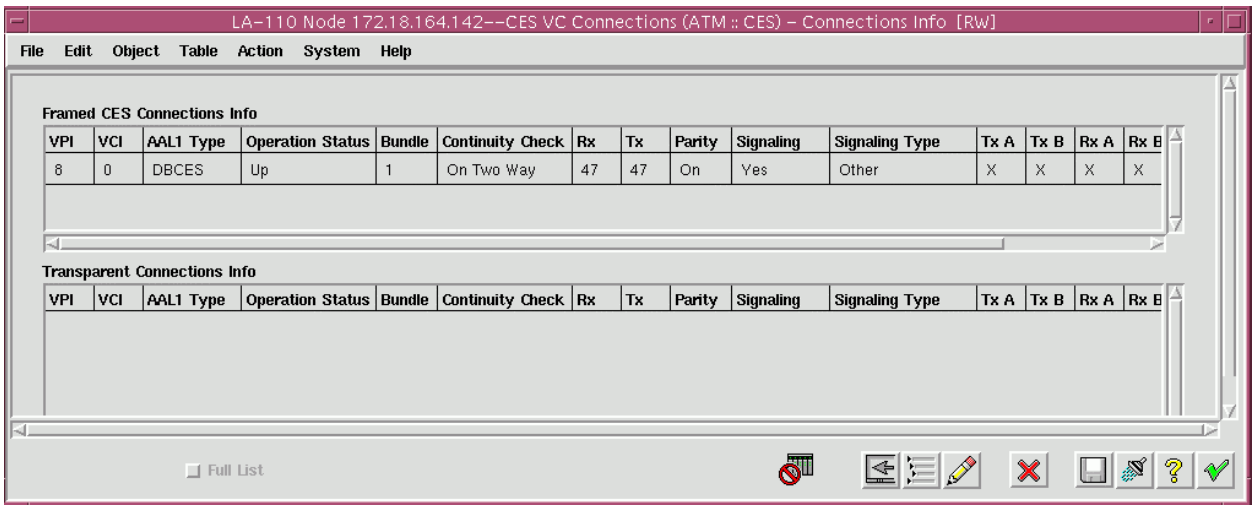

LA-110 Node 172.18.164.142--CES VC Connections (ATM :: CES) – Connections Info [RW]
File Edit Object Table Action System Help
Framed CES Connections Info
VPI VCI AAL1 Type Operation Status Bundle Continuity Check Rx Tx Parity Signaling Signaling Type Tx A Tx B Rx A Rx B
8 0 DBCES Up 1 On Two Way 47 47 On Yes Other X X X X
Transparent Connections Info
VPI VCI AAL1 Type Operation Status Bundle Continuity Check Rx Tx Parity Signaling Signaling Type Tx A Tx B Rx A Rx B
Full List

Figure 5-8. CES VC Connections Info

For CES there are three possible tables that depend on port Line Type and AAL1 Type.

Table 5-8. Framed CES VC Connections Info Parameters

Parameter	Valid Ranges/Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
AAL1 Type	**CES, DBCES** Read-only
Operation Status	**Up, Down** Read-only
Bundle	Used to assist the NMS in selecting a value for the bundle index. **1-31** Read-only
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only
Rx	**10…47** Read-only

Table 5-8. Framed CES VC Connections Info Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Tx	**0, 1, X** Read-only
Parity	**Off, On** Read-only
Signaling	The signaling mode Read-only
Signaling Type	The Signaling type Read-only
Tx A	**0, 1, X** Read-only
Tx B	**0, 1, X** Read-only
Rx A	**0, 1, X** Read-only
Rx B	**0, 1, X** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Table 5-9. Transparent CES VC Connections Info Parameters

Parameter	Valid Ranges/Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
AAL1 Type	**Transparent** Read-only
Operation Status	**Up, Down** Read-only

Table 5-9. Transparent CES VC Connections Info Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Bundle	Used to assist the NMS in selecting a value for the bundle index. **1-31** Read-only
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only
Rx	**10…47** Read-only
Tx	**10…47** Read-only
Parity	**Off, On** Read-only
Signaling	The signaling mode Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Table 5-10. Unframed CES VC Connections Info Parameters

Parameter	Valid Ranges/Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
AAL1 Type	**CES, DBCES, Transparent** Read-only
Operation Status	**Up, Down** Read-only *Note*: ***AAL1 Type can only be transparent*** *in the case of an Unframed CES VC connection*.

Table 5-10. Unframed CES VC Connections Info Parameters (Cont.)

Parameter	Valid Ranges/Remarks
Bundle	Used to assist the NMS in selecting a value for the bundle index. **1-31** Read-only
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** Read-only
Rx	**10…47** Read-only
Tx	**10…47** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Activating/Deactivating Connection

➤ **To activate/deactivate CES VC connections:**

1. In the Navigator, select the necessary CES VC connection, right-click and select **Configure > Activate/Deactivate Connection**.

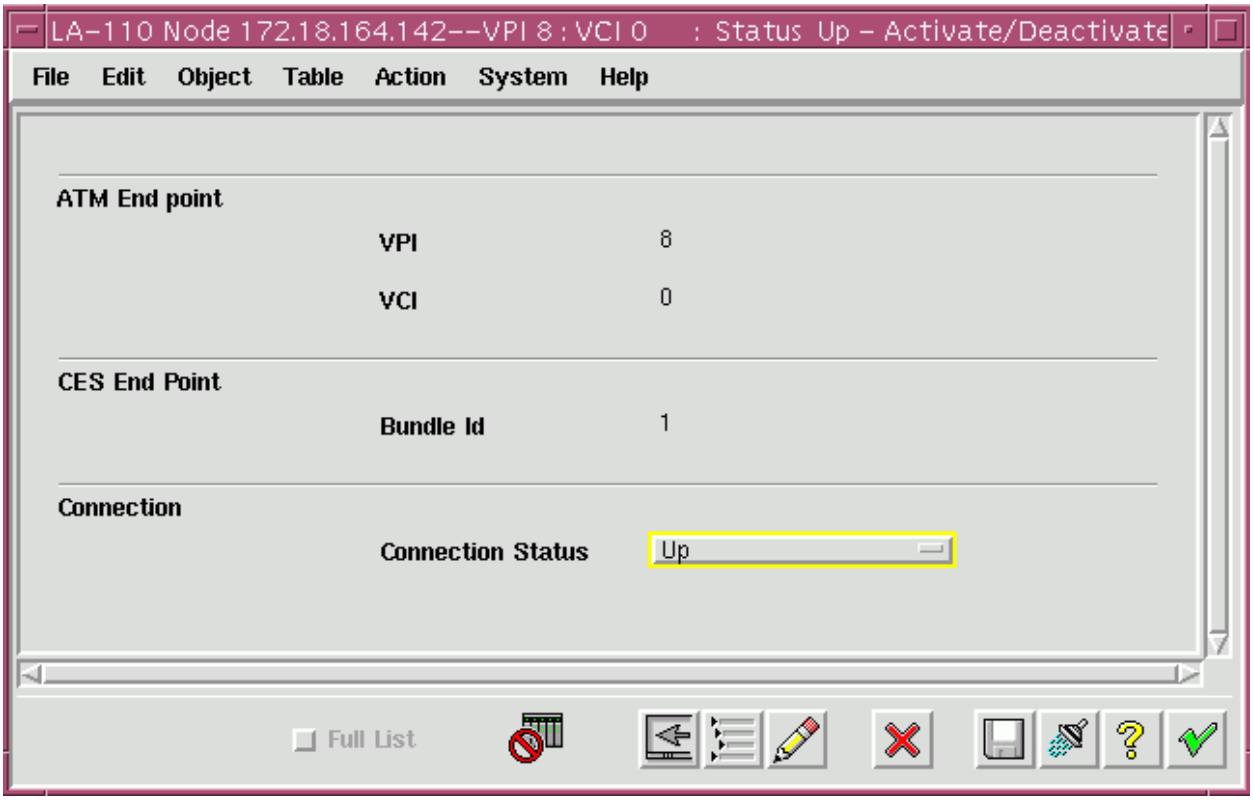


Figure 5-9. CES VC Activate/Deactivate Connections

2. Fill in the fields, as described in *Table 5-11*.
3. Click <**Save**> to save the changes.

Table 5-11. Activate/Deactivate CES VC Connections Parameters

Parameter	Valid Ranges/Remarks
ATM Endpoint	
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
CES Endpoint	
Bundle ID	Used to assist the NMS in selecting a value for the bundle index. **1-31** Read-only
Connection	
Connection Status	**Up, Down**

Loopback Testing

➤ **To configure CES VC connection loopback testing:**

1. In the Navigator, select the CES VC Connections container, right-click and select **Configure > Loopback Test.**

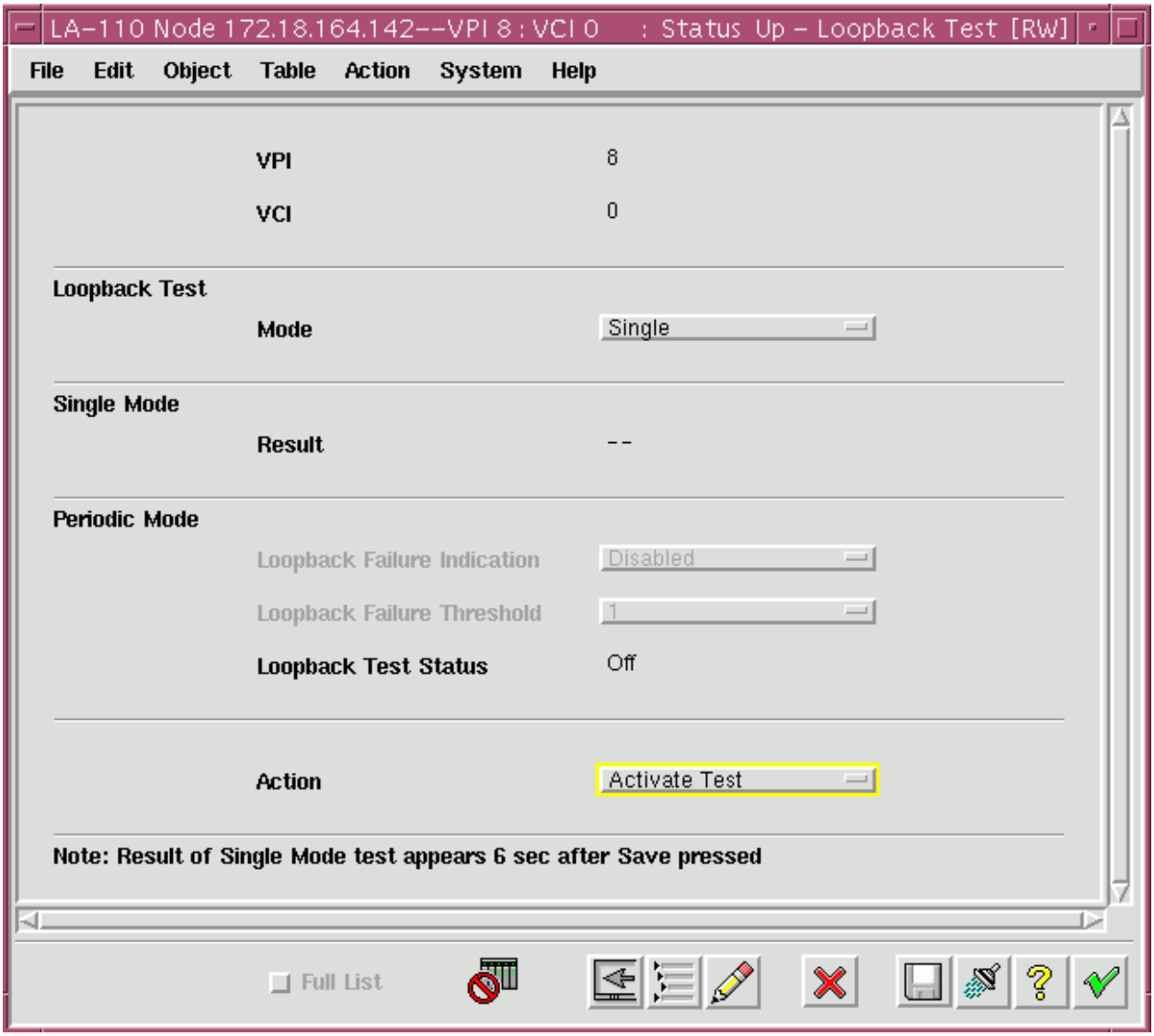

LA-110 Node 172.18.164.142--VPI 8 : VCI 0 : Status Up – Loopback Test [RW]
File Edit Object Table Action System Help
VPI 8
VCI 0
Loopback Test
Mode Single
Single Mode
Result --
Periodic Mode
Loopback Failure Indication Disabled
Loopback Failure Threshold 1
Loopback Test Status Off
Action Activate Test
Note: Result of Single Mode test appears 6 sec after Save pressed
Full List

Figure 5-10. CES VC Connection – Loopback Test

2. Fill in the fields, as described in *Table 5-12*.
3. Click <**Save**> to save the changes.

   The result of the Signal Mode test appears six seconds after the "Save" button is pressed.

Table 5-12. CES VC Connection – Loopback Test Parameters

Parameter	Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
Loopback Test	
Mode	**Single, Periodic**
Single Mode	
Result	**OK, Failed**
Periodic Mode	
Loopback Failure Indication	**Disabled (default), Enabled**
Loopback Failure Threshold	**1 (default)…16** Enabled only if **Loopback Fail Indication** is enabled
Loopback Test Status	Activates a loopback test on the specified port. **Off, Running**
Action	Activates a loopback test on the specified port. **Activate Test, Stop Test**

FR VC Connections

Basic tasks include viewing and configuring:

- Connection Info
- Activating/deactivating connections
- Loopback testing.

Connection Information

Note *This menu will be enable only when application mode = FR.*

➤ **To view FR VC connection information parameters:**

- In the Navigator, select the FR VC Connections container, right-click and select **Configure > Connections Info**.

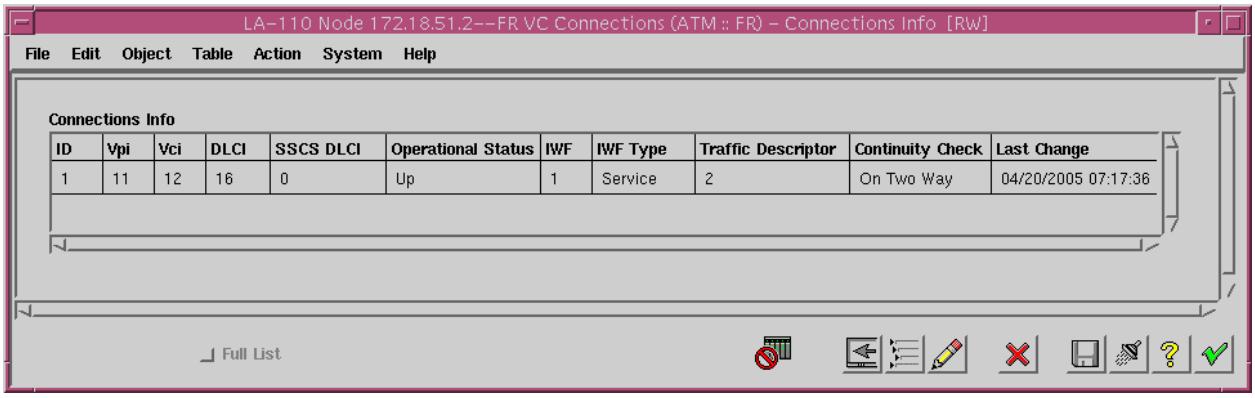

LA-110 Node 172.18.51.2--FR VC Connections (ATM :: FR) - Connections Info [RW]
File Edit Object Table Action System Help
Connections Info
ID Vpi Vci DLCI SSCS DLCI Operational Status IWF IWF Type Traffic Descriptor Continuity Check Last Change
1 11 12 16 0 Up 1 Service 2 On Two Way 04/20/2005 07:17:36
Full List

Figure 5-11. FR VC Connections Info

Table 5-13. FR VC Connections Info Parameters

Parameter	Valid Ranges/Remarks
ID	The row/index number.
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
SSCS DLCI	Read-only
Operation Status	**Up, Down** Read-only
IWF	**0…42** Read-only
IWF Type	**Network, Service** Read-only
Traffic Descriptor	**1…200** Read-only
Continuity Check	**On, Off, Send Only, Receive Only** Read-only
Last Change	This field indicates the time of the last change on the port. Read-only

Activating/Deactivating Connection

➤ **To activate/deactivate FR VC connections:**

1. In the Navigator, select the necessary FR VC connection, right-click and select **Configure > Activate/Deactivate Connection**.

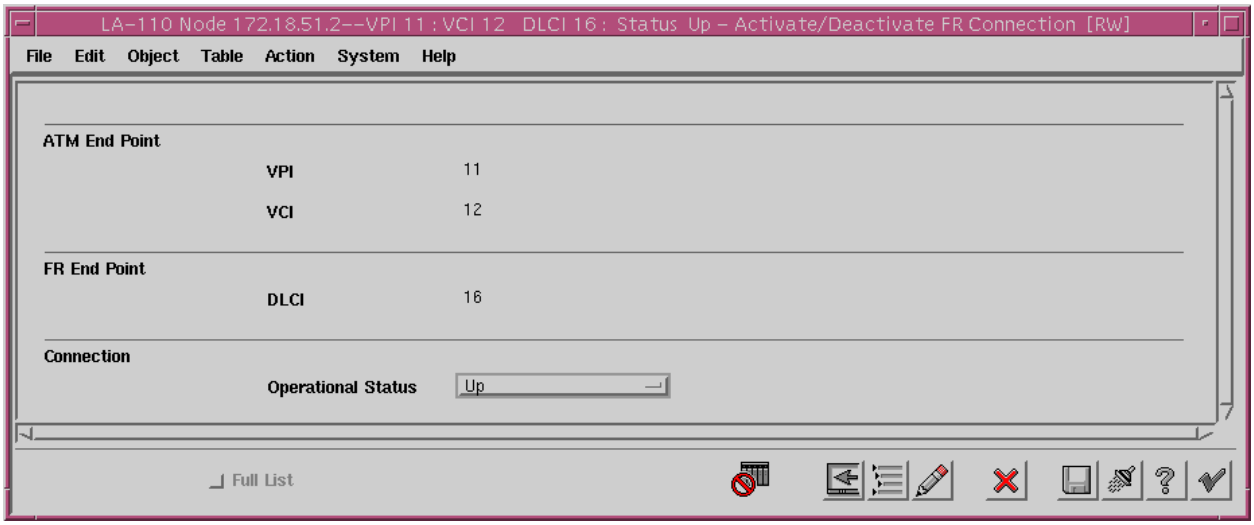

LA-110 Node 172.18.51.2--VPI 11 : VCI 12 DLCI 16 : Status Up – Activate/Deactivate FR Connection [RW]
File Edit Object Table Action System Help
ATM End Point
VPI 11
VCI 12
FR End Point
DLCI 16
Connection
Operational Status Up
Full List

Figure 5-12. FR VC Activate/Deactivate Connections

2. Fill in the fields, as described in *Table 5-14*.
3. Click <**Save**> to save the changes.

Table 5-14. Activate/Deactivate FR VC Connections Parameters

Parameter	Valid Ranges/Remarks
ATM Endpoint	
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
FR Endpoint	
DLCI	**16…991** Read-only
Connection	
Operational Status	**Up, Down**

Loopback Testing

➤ **To configure FR VC connection loopback testing:**

1. In the Navigator, select the FR VC Connections container, right-click and select **Configure > Loopback Test.**

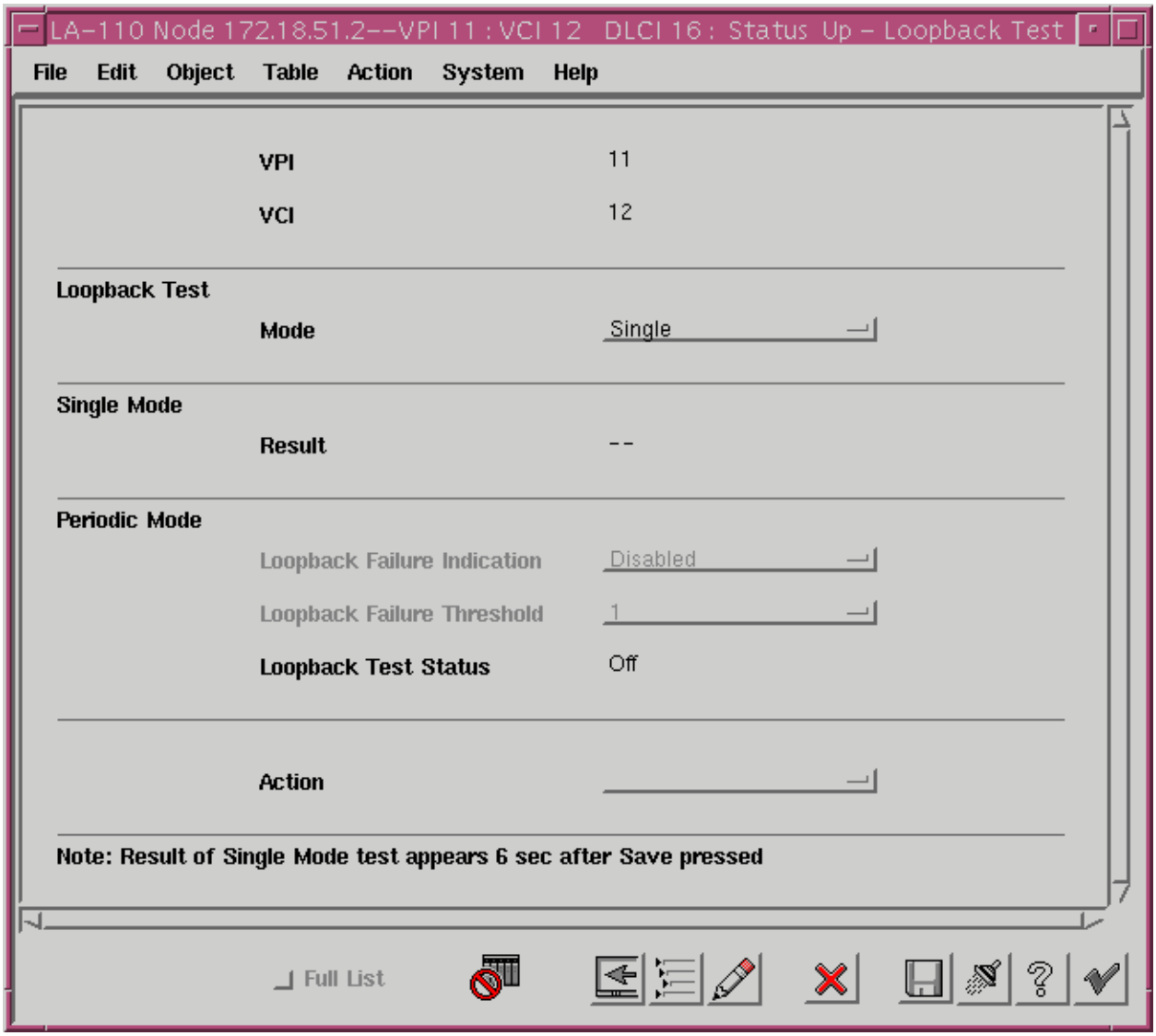

LA-110 Node 172.18.51.2--VPI 11 : VCI 12 DLCI 16 : Status Up – Loopback Test
File Edit Object Table Action System Help
VPI 11
VCI 12
Loopback Test
Mode Single
Single Mode
Result --
Periodic Mode
Loopback Failure Indication Disabled
Loopback Failure Threshold 1
Loopback Test Status Off
Action
Note: Result of Single Mode test appears 6 sec after Save pressed
Full List

Figure 5-13. FR VC Connection – Loopback Test

2. Fill in the fields, as described in *Table 5-15*.
3. Click <**Save**> to save the changes.

   The result of the Signal Mode test appears six seconds after the "Save" button is pressed.

Table 5-15. FR VC Connection – Loopback Test Parameters

Parameter	Remarks
VPI	The VPI value of the VC.
VCI	The VCI value of the VC. Read-only
Loopback Test	
Mode	**Single, Periodic**
Single Mode	
Result	**OK, Failed** Read-only
Periodic Mode All fields in this section will be enable only if Mode=Single.	
Loopback Failure Indication	**Disabled (default), Enabled**
Loopback Failure Threshold	**1 (default)…16** Enabled only if **Loopback Fail Indication** is enabled
Loopback Test Status	Activates a loopback test on the specified port. **Off, Running** Read-only
Action	Activates a loopback test on the specified port. **Loopback Test, Stop Test**

AAL1 Stream VC Connections

Basic tasks include viewing and configuring:

- Connection information
- Activate/Deactivate connection
- Loopback testing.

Connection Information

➤ **To view AAL1 Stream VC connection information parameters:**

- In the Navigator, select the AAL1 Stream VC Connections container, right-click and select **Configure > Connections Info**.

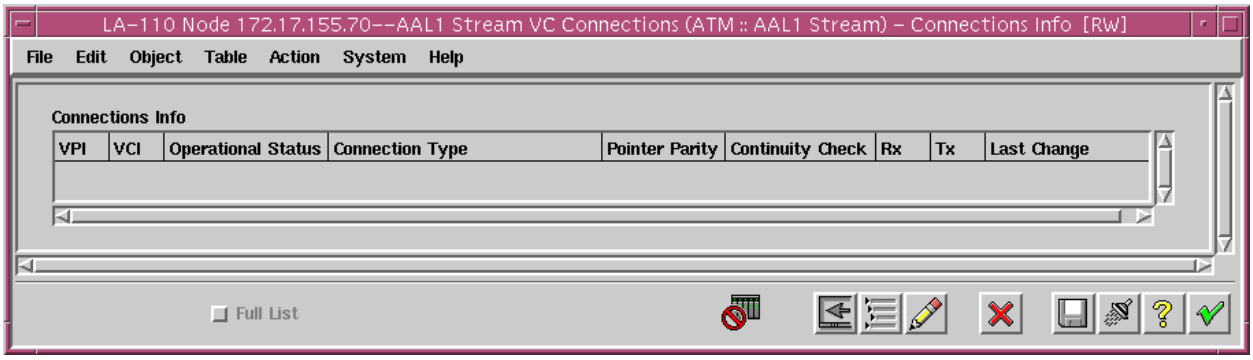

LA-110 Node 172.17.155.70--AAL1 Stream VC Connections (ATM :: AAL1 Stream) – Connections Info [RW]
File Edit Object Table Action System Help
Connections Info
VPI VCI Operational Status Connection Type Pointer Parity Continuity Check Rx Tx Last Change
Full List

Figure 5-14. AAL1 Stream VC Connections Info

Table 5-16. AAL1 Stream VC Connections Info Parameters

Parameter	Valid Ranges/Remarks
ATM Endpoint	
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
AAL1 Endpoint	
Rx	**10…47** (default) Read-only
Tx	**10…47** (default) Read-only
Last Change	This field indicates the time of the last change on the port. Read-only
Connection	
Connection Type	**Unstructured, Structured** Read-only
Connection Status	**Activate, Deactivate** Read-only

Activating/Deactivating Connection

➤ **To activate/deactivate AAL1 Stream VC connections:**

1. In the Navigator, select the necessary AAL1 Stream VC connection, right-click and select **Configure > Activate/Deactivate Connection**.

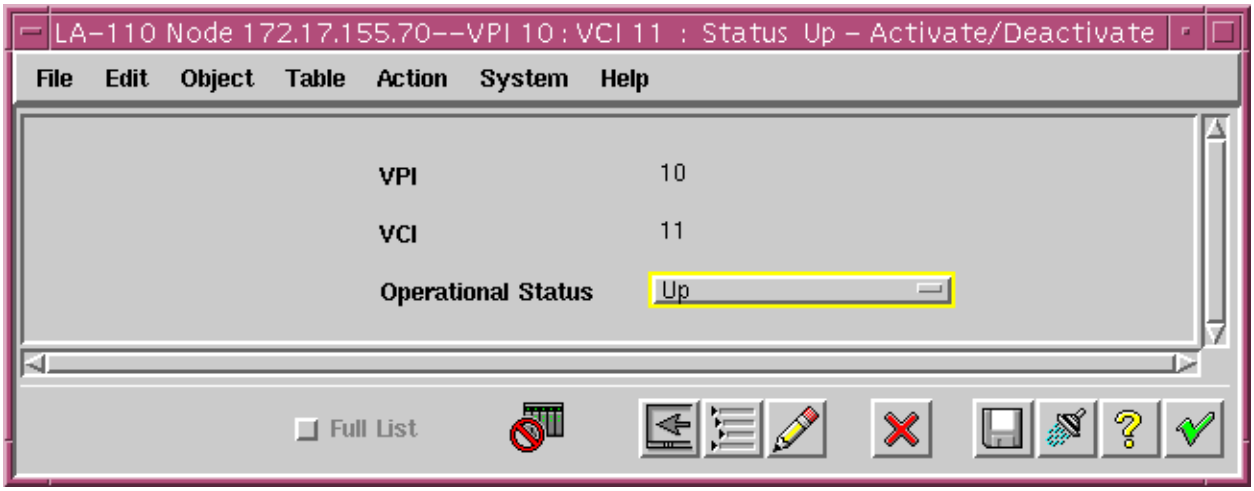


Figure 5-15. AAL1 Stream VC Activate/Deactivate Connections

2. Fill in the fields, as described in *Table 5-17*.
3. Click <**Save**> to save the changes.

Table 5-17. Activate/Deactivate AAL1 Stream VC Connections Parameters

Parameter	Valid Ranges/Remarks
ATM Endpoint	
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
Operational Status	**Up, Down**

Loopback Testing

➤ **To configure AAL1 Stream VC connection loopback testing:**

1. In the Navigator, select the necessary AAL1 Stream VC connection, right-click and select **Configure > Loopback Test.**

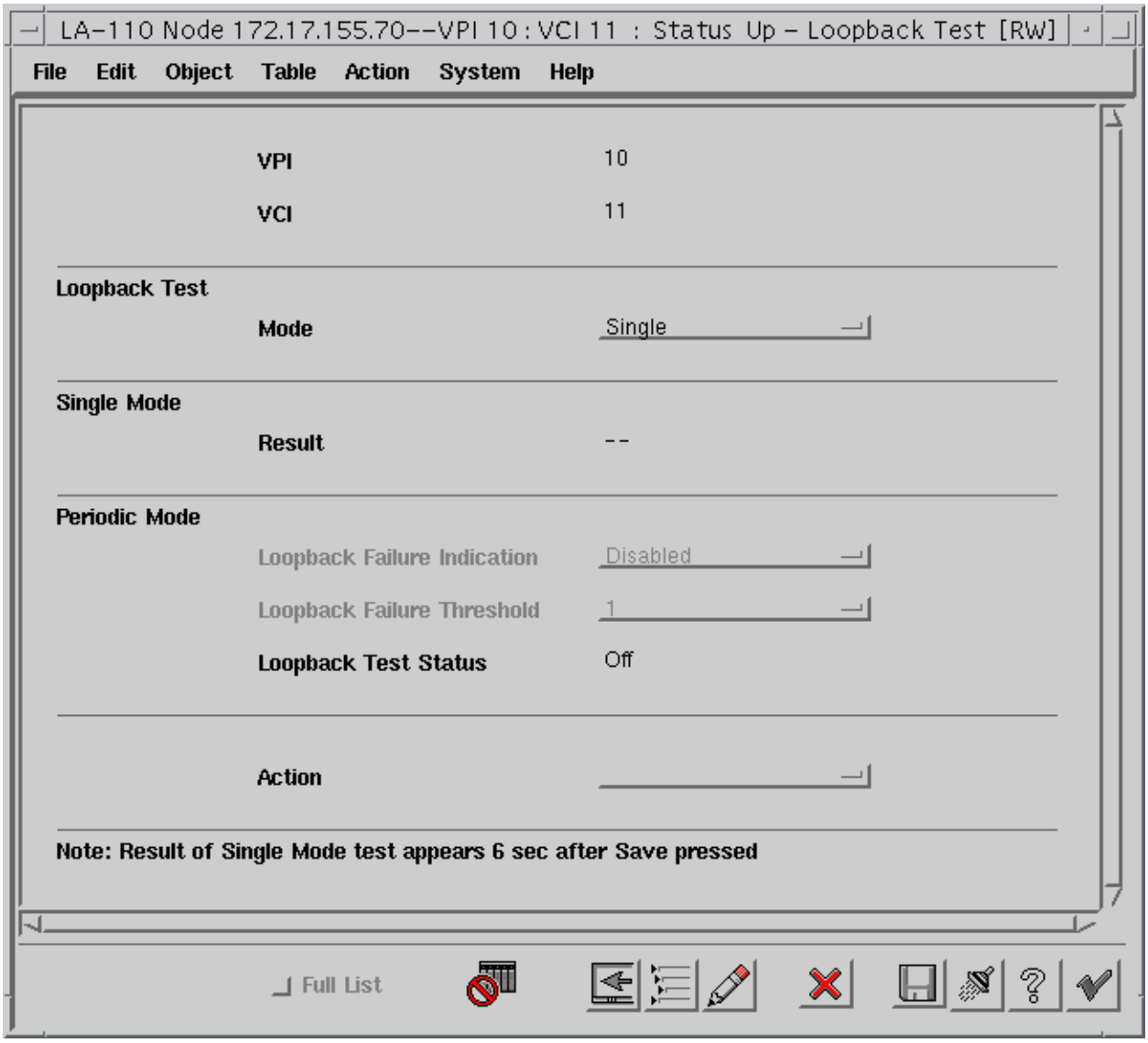

LA-110 Node 172.17.155.70--VPI 10 : VCI 11 : Status Up – Loopback Test [RW]
File Edit Object Table Action System Help
VPI 10
VCI 11
Loopback Test
Mode Single
Single Mode
Result --
Periodic Mode
Loopback Failure Indication Disabled
Loopback Failure Threshold 1
Loopback Test Status Off
Action
Note: Result of Single Mode test appears 6 sec after Save pressed
Full List

Figure 5-16. AAL1 Stream VC Connection – Loopback Test

2. Fill in the fields, as described in *Table 5-18*.
3. Click <**Save**> to save the changes.

   The result of the Signal Mode test appears six seconds after the "Save" button is pressed.

Table 5-18. AAL1 Stream VC Connection – Loopback Test Parameters

Parameter	Remarks
VPI	The VPI value of the VC. **0…31** Read-only
VCI	The VCI value of the VC. **0…255** Read-only
Loopback Test	
Mode	**Single, Periodic**
Single Mode	
Result	**OK, Failed** Read-only
Periodic Mode	
All fields in this section will be enabled only if Mode=Single.	
Loopback Failure Indication	**Disabled (default), Enabled**
Loopback Failure Threshold	**1** (default)**…16** Enabled only if **Loopback Fail Indication** is enabled
Loopback Test Status	Activates a loopback test on the specified port. **Off, Running** Read-only
Action	Activates a loopback test on the specified port. **Loopback Test, Stop Test**

5.3 Performance Monitoring

The LA-110 Navigator application allows you to monitor cross connections and related performance statistics. Basic tasks include viewing:

- OAM loopback statistics
- CES VC Connection – OAM loopback statistics
- Data FR - OAM loopback statistics
- Data AAL1 - OAM loopback statistics.

Note *All of the Performance Monitoring parameters, as shown in the tables below, are read-only.*

Viewing VC Connection OAM Loopback Statistics

In the OAM loopback test the device sends LB cell every 5 seconds. If the cell does not return within 5 seconds the test is defined as a failed one.

In the LA-110 Navigator, you can view OAM loopback statistics for any VC Connection, including LAN, CES, FR, and AAL1 Stream, and any related sub-connections (such as VPI ILMI for LAN VCs, etc.).

1. In the Navigator, double-click the **Connections** container to display the connection type options.
2. Select the relevant connection (LAN VC, CES VC, FR VC, or AAL1 Stream VC), right-click and select **Monitor > Statistics > OAM Loopback Statistics**.

   The relevant OAM Loopback Statistics window opens.

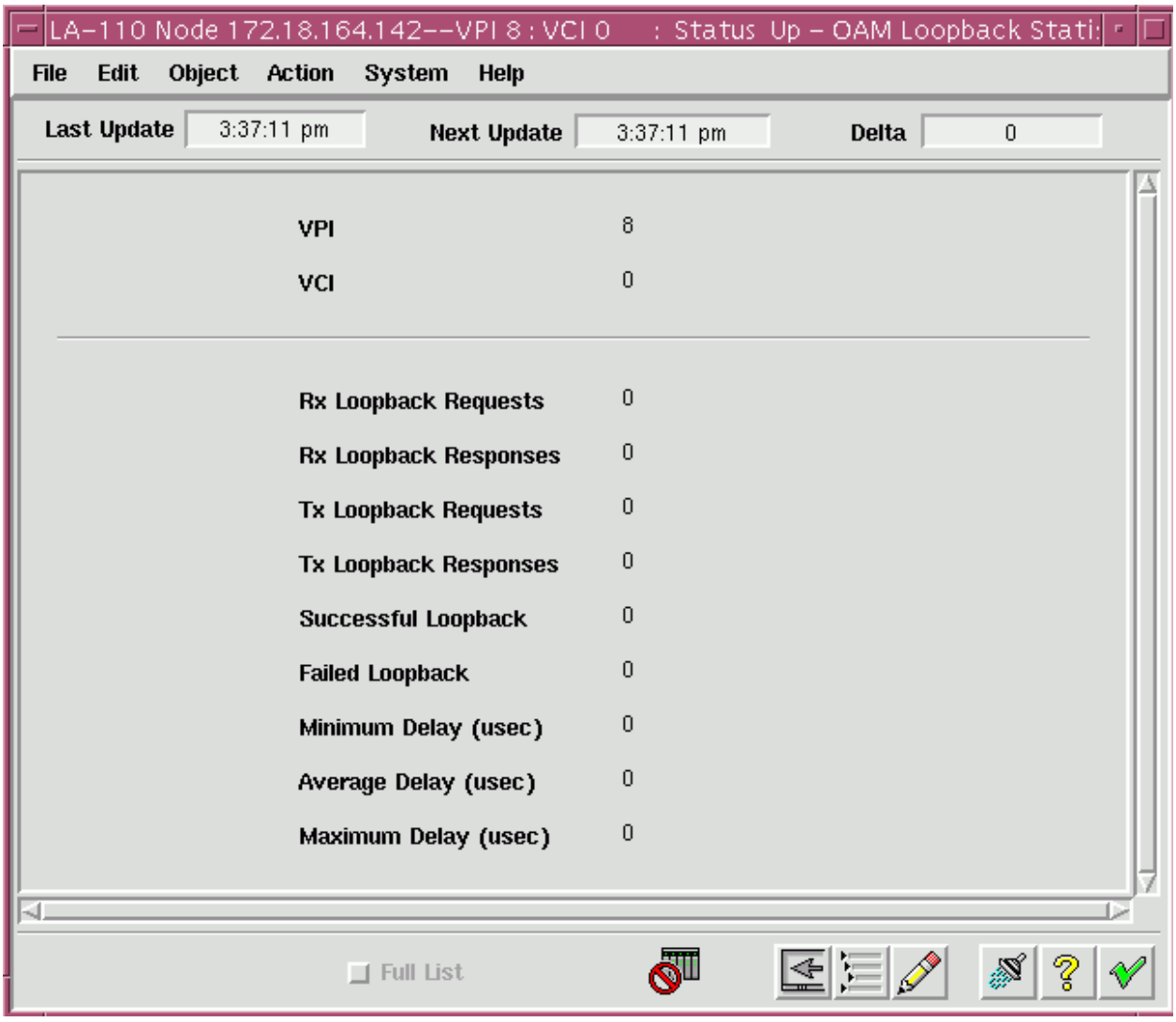

LA-110 Node 172.18.164.142--VPI 8 : VCI 0 : Status Up – OAM Loopback Stati
File Edit Object Action System Help
Last Update 3:37:11 pm
Next Update 3:37:11 pm
Delta 0
VPI 8
VCI 0
Rx Loopback Requests 0
Rx Loopback Responses 0
Tx Loopback Requests 0
Tx Loopback Responses 0
Successful Loopback 0
Failed Loopback 0
Minimum Delay (usec) 0
Average Delay (usec) 0
Maximum Delay (usec) 0
Full List

Figure 5-17. VC Connection - OAM Loopback Statistics Window

Table 5-19. OAM Loopback Statistics Parameters

Parameter	Remarks
VPI	The VPI value of the VC. Read-only
VCI	The VPI value of the VC. Read-only
Rx Loopback Requests	Total number of loopback requests received by the device on a VC. Read-only
Rx Loopback Responses	Total number of loopback responses that were received as a result of loopback transmitted by the device. Read-only
Tx Loopback Requests	Total number of loopback requests transmitted by the device on a VC. Read-only
Tx Loopback Responses	Total number of loopback responses transmitted by the device on a VC. Read-only
Successful Loopback	Total number of loopbacks that were requested by the device and for which there was a response. Read-only
Failed Loopback	Total number of loopbacks that were requested by the device and for which there was no response Read-only
Minimum Delay (µsec)	The minimum delay. Read-only
Average Delay (µsec)	The average delay without including lost cells. Read-only
Maximum Delay (µsec)	The maximum delay without including lost cells. Read-only

5.4 Deleting Cross Connections

In the Navigator, you can manually delete selected cross connections.

➤ **To delete a cross connection**

- In the Navigator, select the relevant Connection object(s), and on the **Object** menu, click <**Delete**>.

  The selected Connection object(s) is deleted.

It is also possible to simultaneously delete (up to 10) multiple cross connections by selecting them and following the above steps.

Chapter 6

Path Management

This chapter discusses how to use the LA-110 Module Descriptor to configure links and paths, to connect ports of LA-110 devices.

Path management is an easy and quick method to acquire end-to-end connectivity between two given endpoints.

A link can be created between two equipment ports in the network. An LA-110 endpoint can be linked to another 5620 managed endpoint with the same features.

A path can be created between any of the other three modules of the LA-110 to another managed endpoint in the 5620 SNMP map. The path endpoints do not have to be from the same type. For example, one path endpoint can be ATM and the other can be LAN.

Path management includes the following tasks:

- Configuring and Monitoring Links and Paths
- Configuring and Monitoring ATM VCC Paths.

6.1 Configuring and Monitoring Links and Paths

LA-110 MD allows you to configure and monitor new Links and new Paths at the network level.

A Link is a physical connection between two devices, whereas a Path is a logical connection between two ports. Before you can create a path, you must first create a link.

LA-110 allows you to create links between SHDSL ports.

Configuring SHDSL Links

You can configure a link between two SHDSL ports of ATM modules. To create a link between SHDSL ports of two LA-110s, you need to connect the SDHSL ports to a central SDHSL DSLAM. You cannot create a direct link between SHDSL ports of different LA-110 devices.

➤ **To configure a full link between two SHDSL ports:**

1. Right-click on the Entire Network map (without selecting any objects), and from the shortcut menu, select **Create** > **Physical Links > Full**.

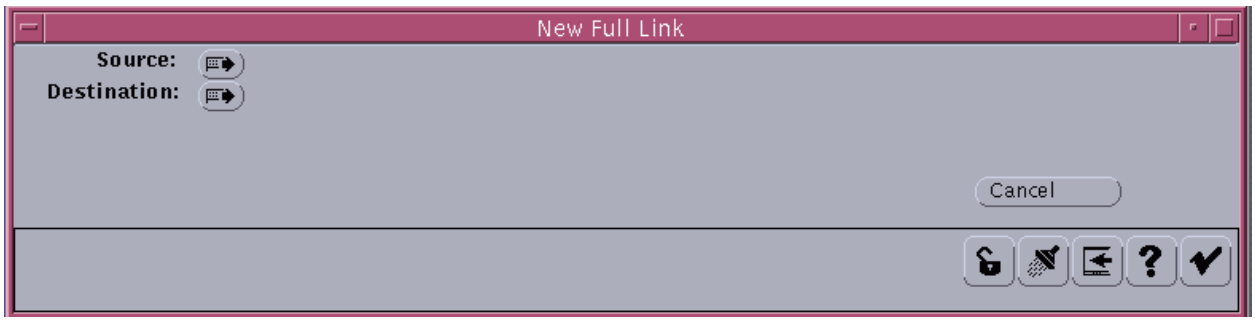


Figure 6-1. New Full Link Dialog Box

2. On the Entire Network map, double-click an **LA-110 Node** icon to open the LA-110 Shelf View.

Figure 6-2. LA-110 Node Shelf View

3. Double-click the **SHDSL port** to focus on it – to open its zoom view.

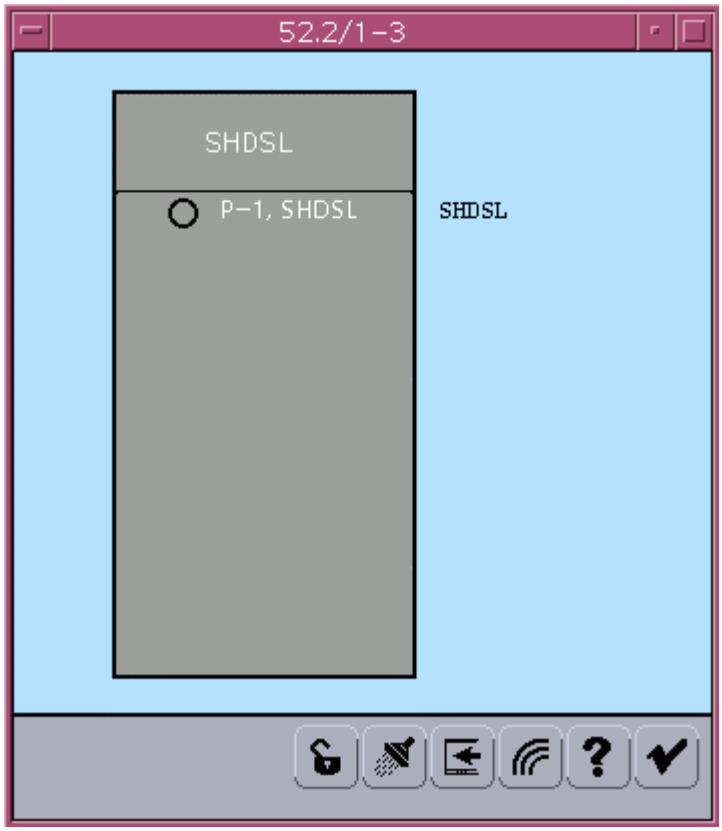


Figure 6-3. Zoom View of the SHDSL Port

Note *To be suitable as a link endpoint, the port must be free of alarms.*

4. Click the **port** to highlight it.
5. Click the <**Source>** button.

   The port is inserted, and a form opens, displaying the port information.

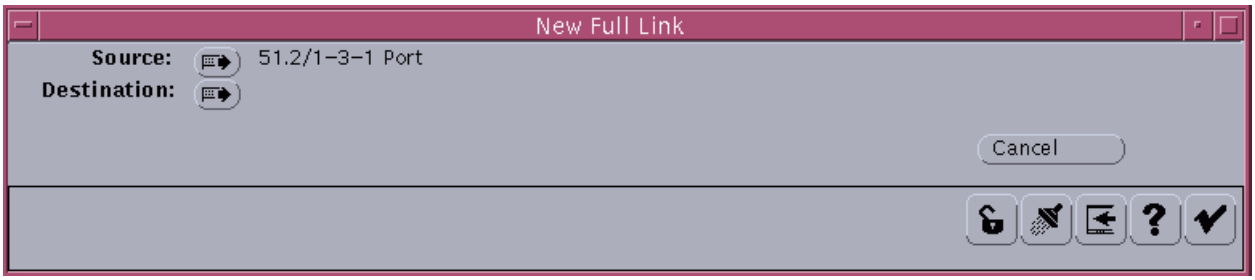


Figure 6-4. New Full Link Dialog Box (With Port Information)

6. On the Entire Network Map, double-click the second node and repeat steps 3 and 4.
7. In the New Full Link dialog box click the <**Destination>** button.

   The port is inserted, and a form opens, in which you can view and modify fields. The SIR/MIR values show the upper and lower bandwidth value, and are predefined in DSLAM. Verify that the SIR/MIR range is the bandwidth you want.

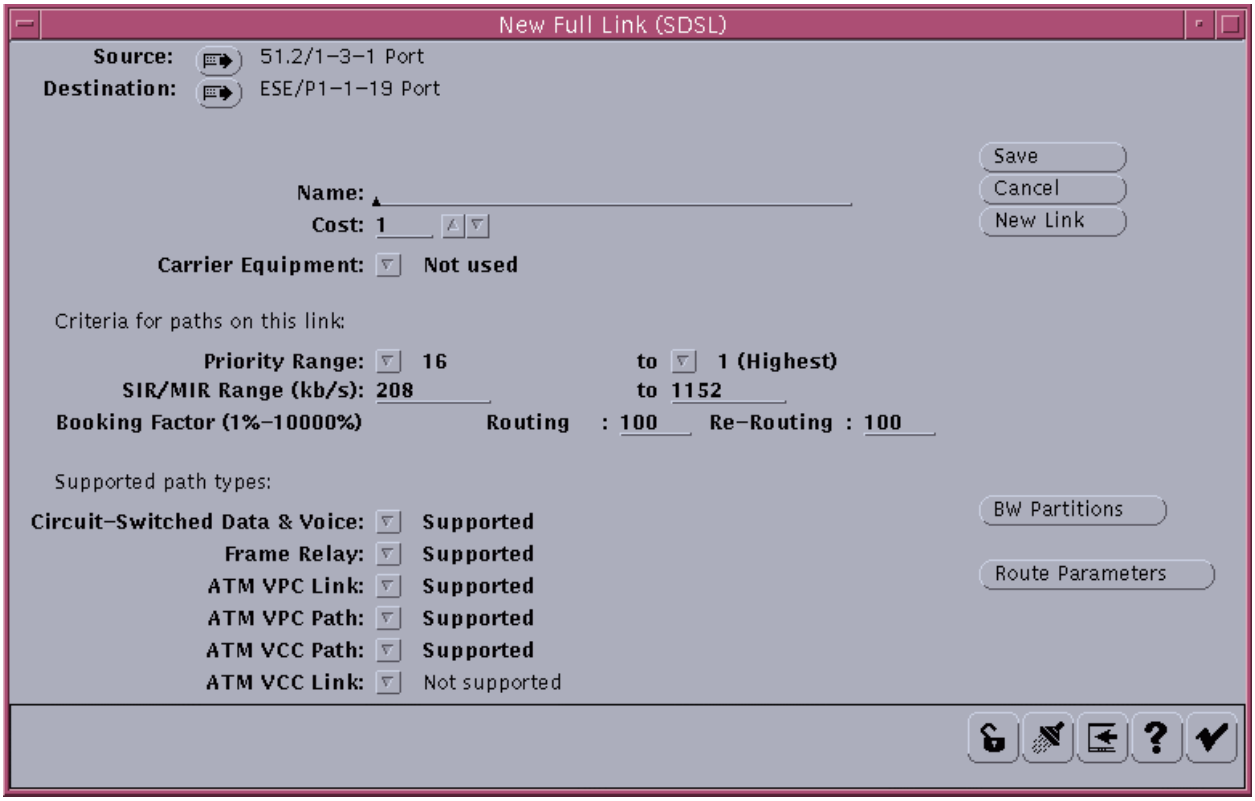


Figure 6-5. New Full Link Dialog Box

8. Enter the relevant information for the appropriate attributes.
9. Click <**Save**>.

   A line denoting a link appears on the Entire Network Map (*Figure 6-6*).

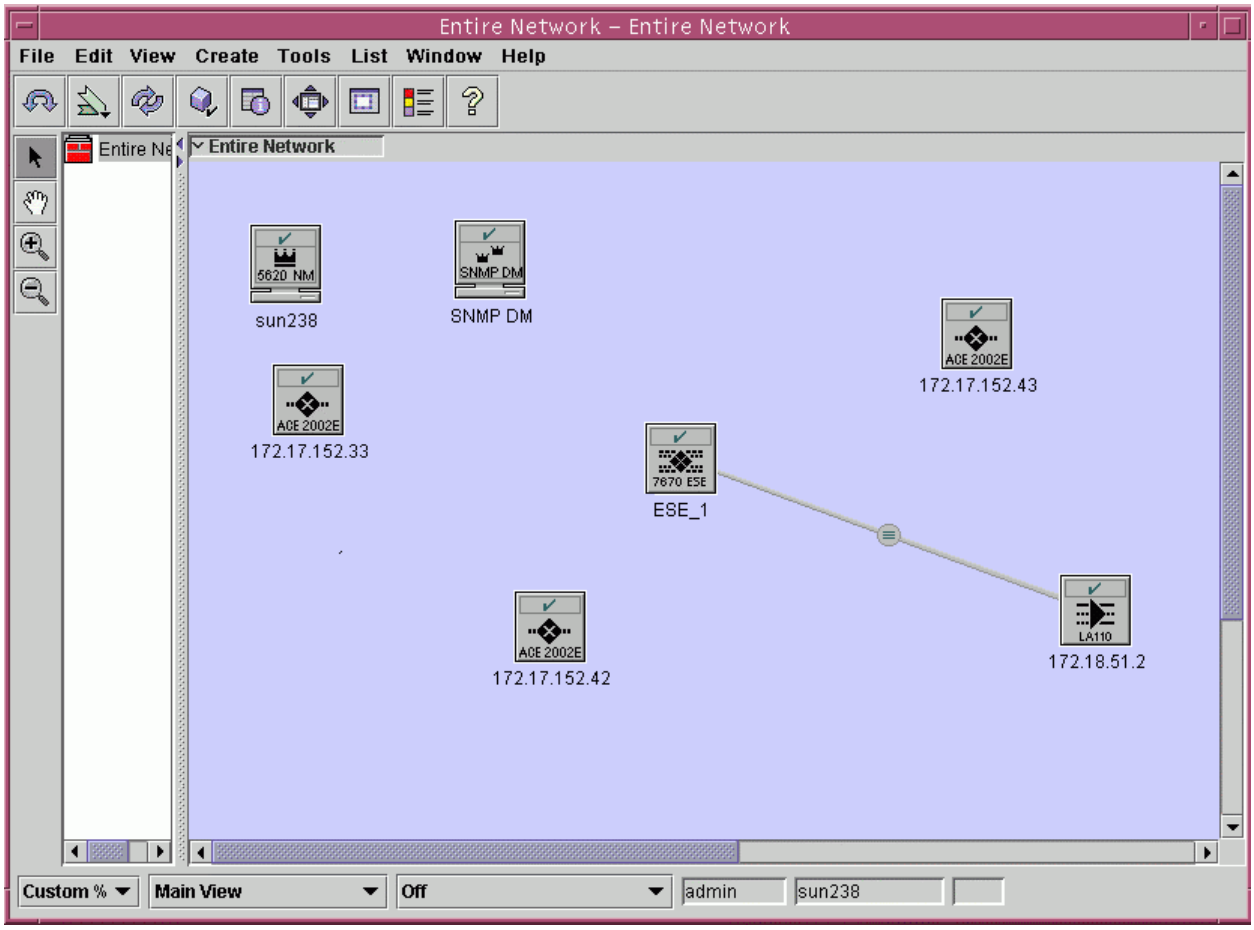


Figure 6-6. Entire Network Map Displaying a Link

Note *In the Entire Network map, the line denoting a link is colored green only if there are no alarms on any of the endpoints. If (after the Link was added) there are alarms on any of the endpoints the line is colored red.*

Note *If there is a change in the ATM payload of the DSLAM SHDSL port, then the change also appears in the New Full Link form.*

Note *Once the link bandwidth is set, you cannot create a path in a higher aggregation than the link, unless you set a higher value for the links (by reconfiguring the object, as described previously.*

6.2 Configuring and Monitoring ATM VCC Paths

LA-110 MD allows you to configure and monitor ATM VCC paths between the following endpoints:

- Ethernet ports
- E1 CES ports
- Data FR / AAL1 Stream ports.

LAN to LAN Paths

➤ **To configure a path between two LAN (Ethernet) ports:**

1. Right-click on the Entire Network Map and select **Create > ATM and TDM > Paths > ATM > VCC**.

   The new ATM VCC path form opens, in which you can specify the path endpoints.

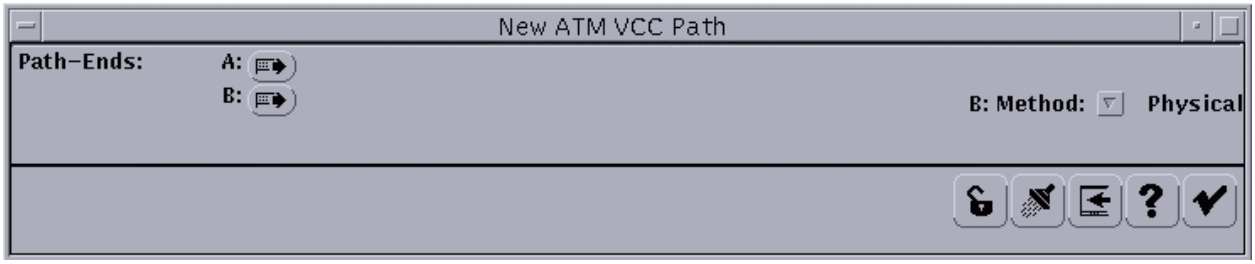


Figure 6-7. New ATM VCC Path

2. On the Entire Network Map, double-click an **LA-110** icon to open the LA-110 Node shelf view (*Figure 6-2*).
3. Double-click the **LAN port** to focus on it – to open its zoom view.

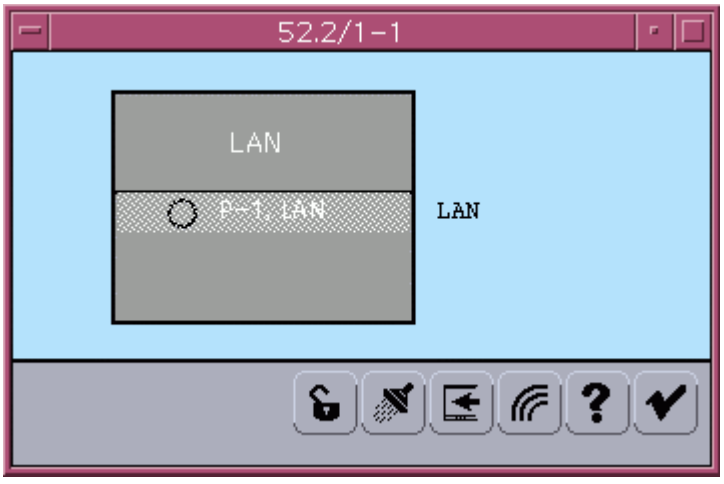


Figure 6-8. Zoom View of LAN Port

4. Select the LAN port to highlight it.
5. In the New ATM VCC Path, click the <**Path-endpoint A>** button to assign the port as an endpoint.

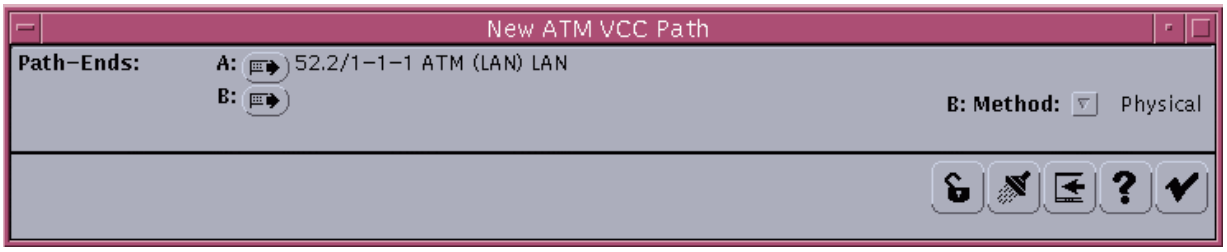


Figure 6-9. New ATM VCC Path Showing Path Endpoint A

6. In the Entire Network map, double-click the second LA-110 node to open its Shelf View, and repeat steps 4 and 5 to assign the port as the second endpoint (B).

   The New ATM VCC Path form opens, displaying General parameters.

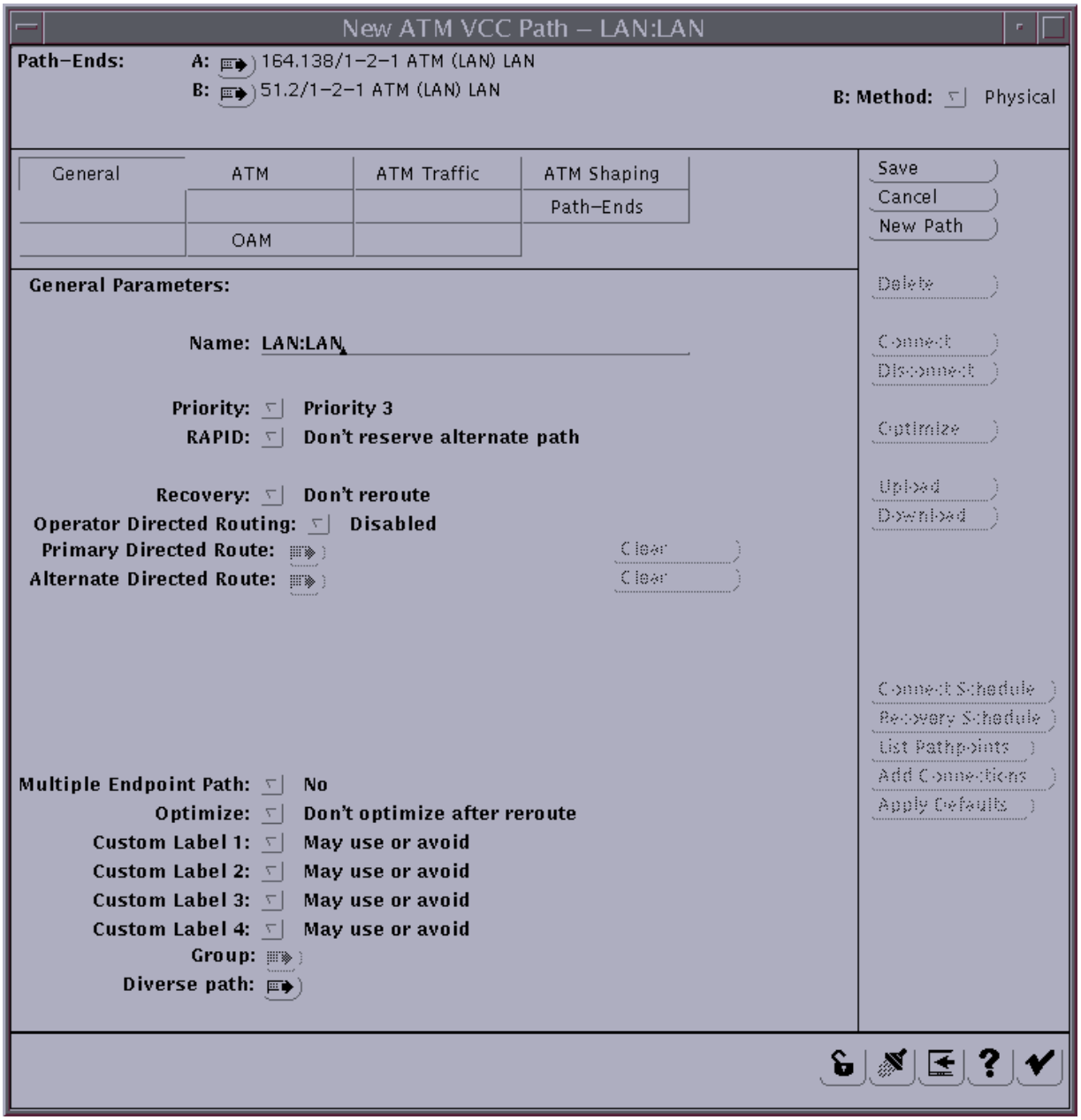


Figure 6-10. New ATM VCC Path Showing General Parameters

7. In the New ATM VCC path form for LAN, in the Name field, type in the name for the LAN path.
8. To assign ATM parameters, click ATM, and in the VPI and VCI fields, type in the desired endpoint A and B values. Note that these settings do not affect the LA-110 device.

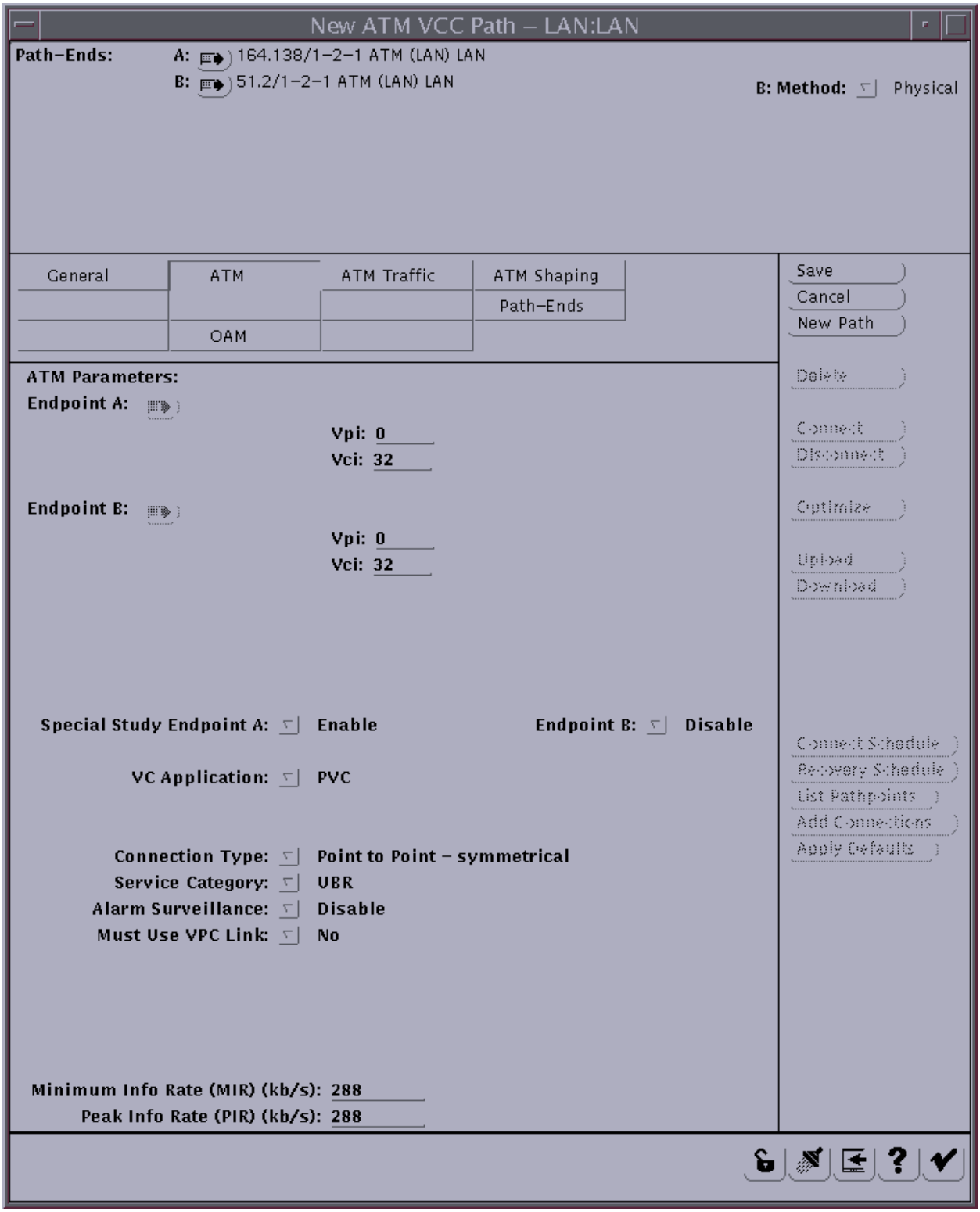


Figure 6-11. New ATM VCC Path Showing ATM Parameters

9. To assign ATM Traffic parameters, click <**ATM Traffic**>:

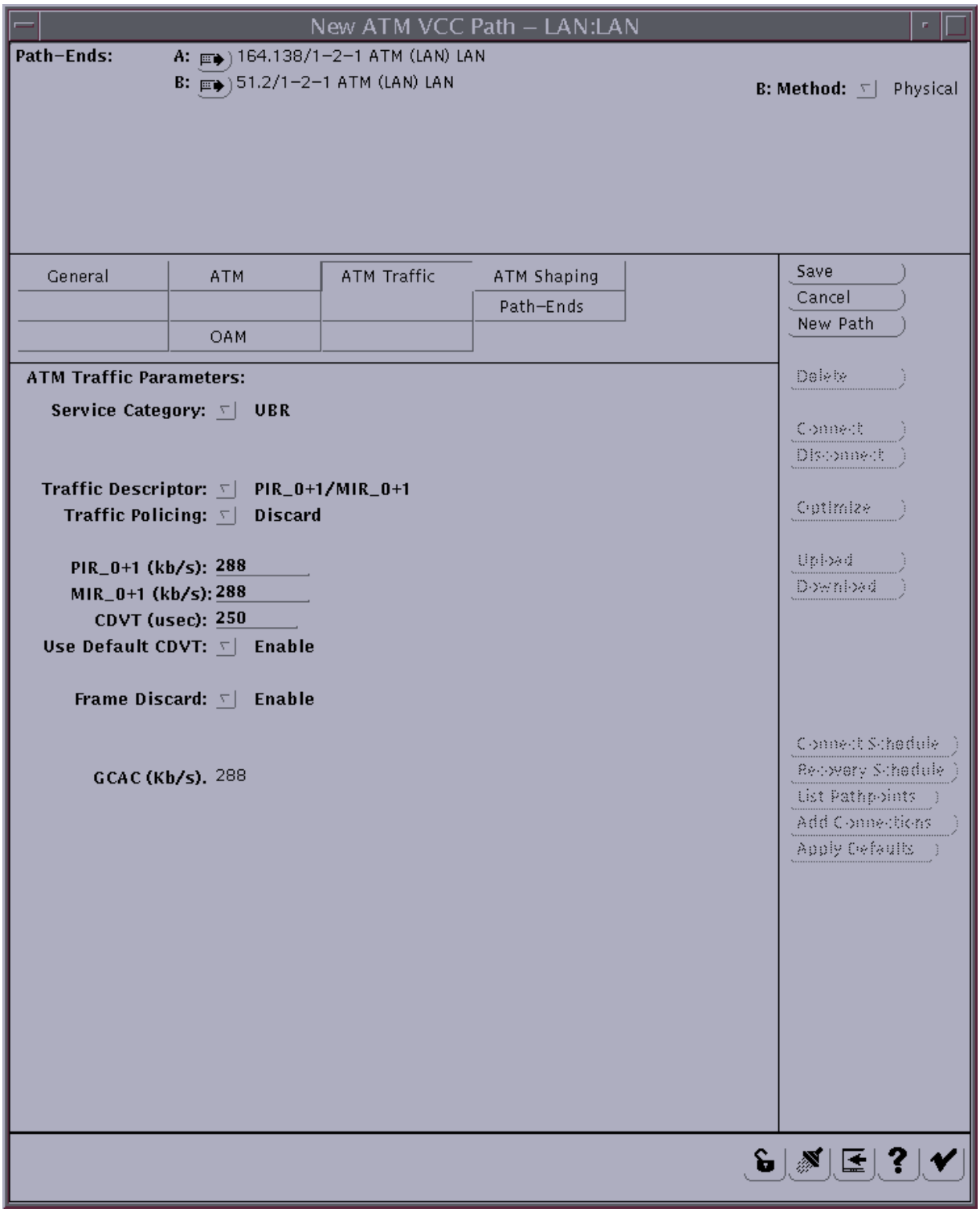


Figure 6-12. New ATM VCC Path Showing Traffic Parameters

a. In the Service category, the LAN-supported options include: CBR, rt VBR, and UBR.

b. In the PIR (peak Information rate) and MIR (Minimum Information Rate) fields, assign the PIR and MIR values. Note that the PIR rate must be the same or higher than the MIR rate.

Note *According to 5620 regulations, the UBR Service Category connection consumes a fixed share of bandwidth (BW), although in LA-110 terms, the configured BW is not guaranteed. Several UBR connections created through the 5620 NM or 5620 DM may consume the available link BW, and prevent the creation of additional CBR connections, for example.*
The UBR consumed BW is set by the configured MIR value, therefore it is recommended to set as low as possible an MIR rate.
If setting a low MIR is not possible, RAD recommends that in case of an application, in which UBR and other service category connections are involved, the connection that will first be created will be the ones with the guaranteed bit rate (i.e. CBR). Only after that UBR connections will be created, from the 5620 NM (if BW allocation is not yet full) or from the 5620 DM if the link capacity has reached its limits.
It should be noted the UBR management connections with BWs of zero are reported to the 5620.

10. Click <**Save>** to save the changes.

    The Status will show "Ready for connect".

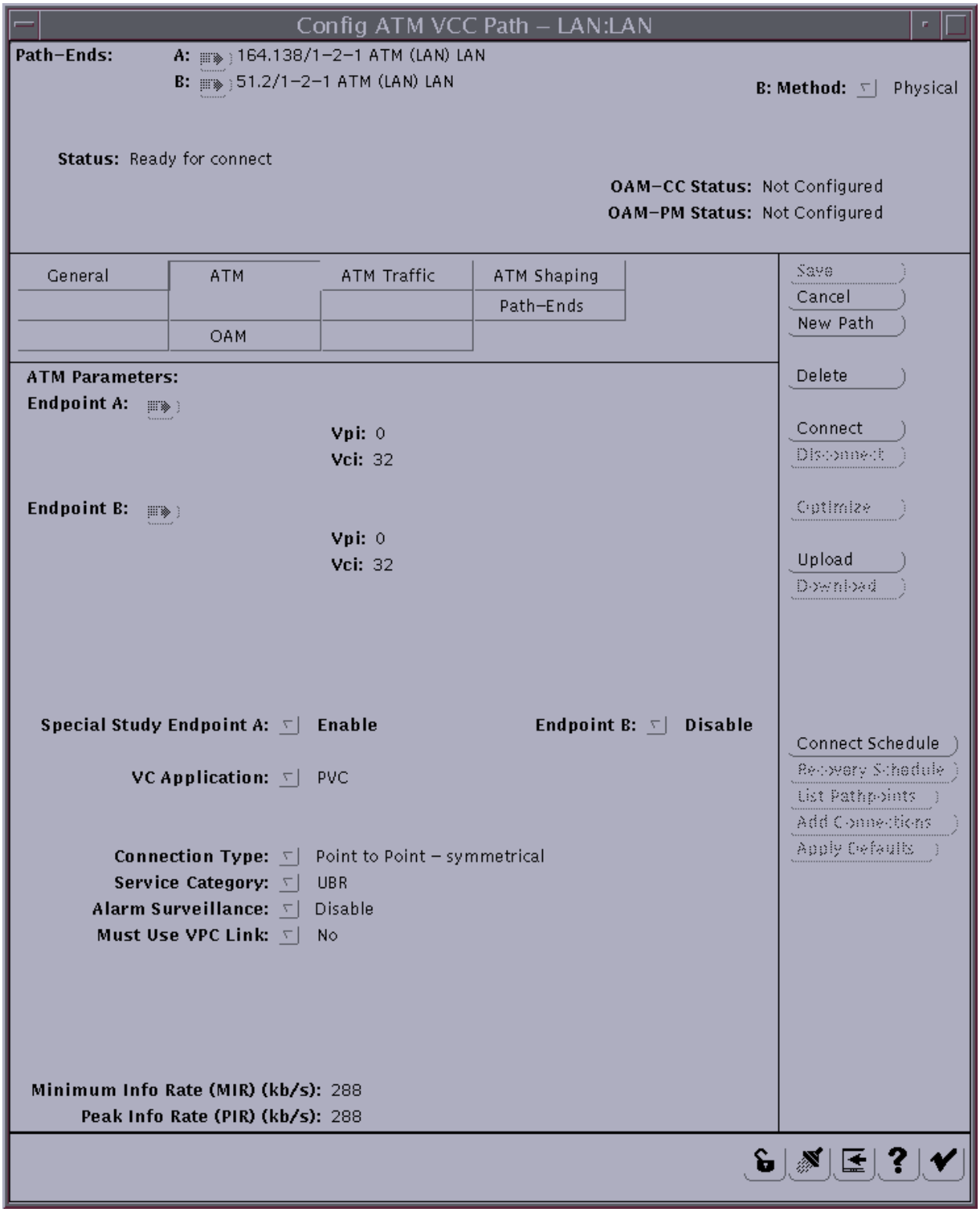


Figure 6-13. New ATM VCC Path Showing "Ready for Connect" Status

11. Click <**Connect>.**
12. To view the LAN path you have created, in Entire Network map, select the NE, right-click and select **List > ATM and TDM > Paths**.

    The List Paths form opens.

13. Click the <**Make List**> button to display the list of paths created, as shown in the following sample figure.

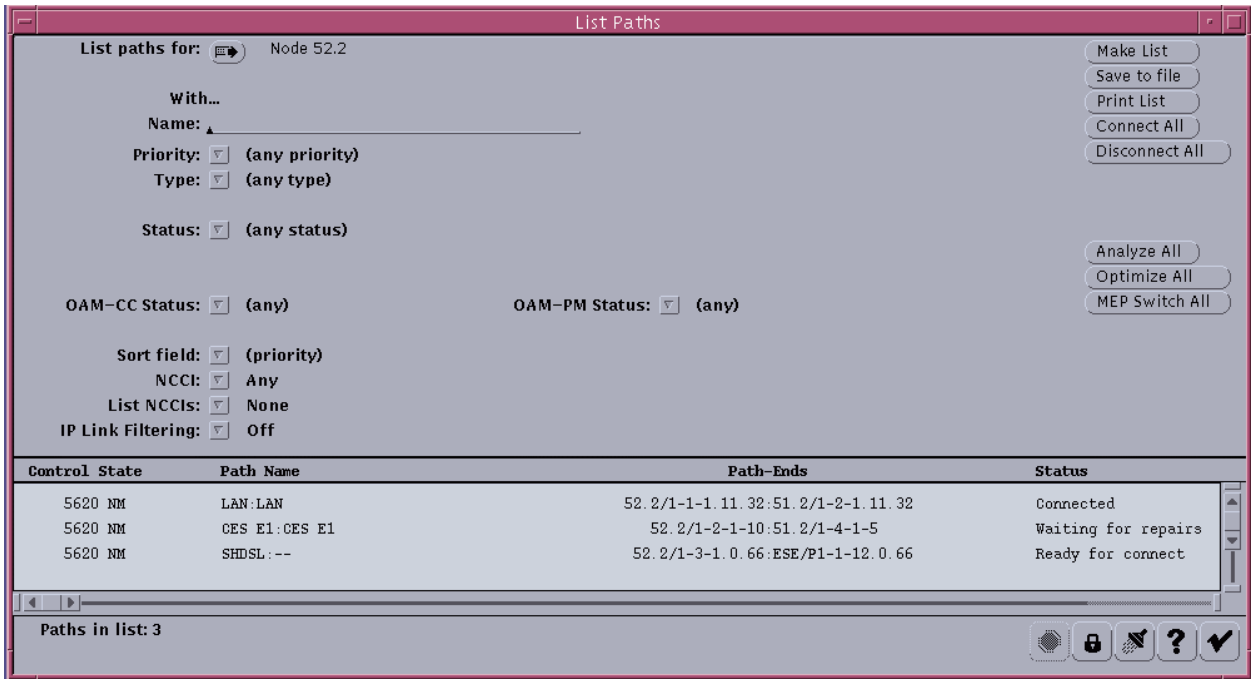


Figure 6-14. Sample Paths List

6.3 Viewing and Modifying CES Path Parameters

LA-110 MD allows you to view and modify CES path parameters..

The configuration made here will affect 5620 E1-CES paths that will subsequently be created.

➤ **To view and modify CES path parameters:**

1. In the LA-110 Node Draw, select the system, and select **Object > Configure > CES Path Parameters**.

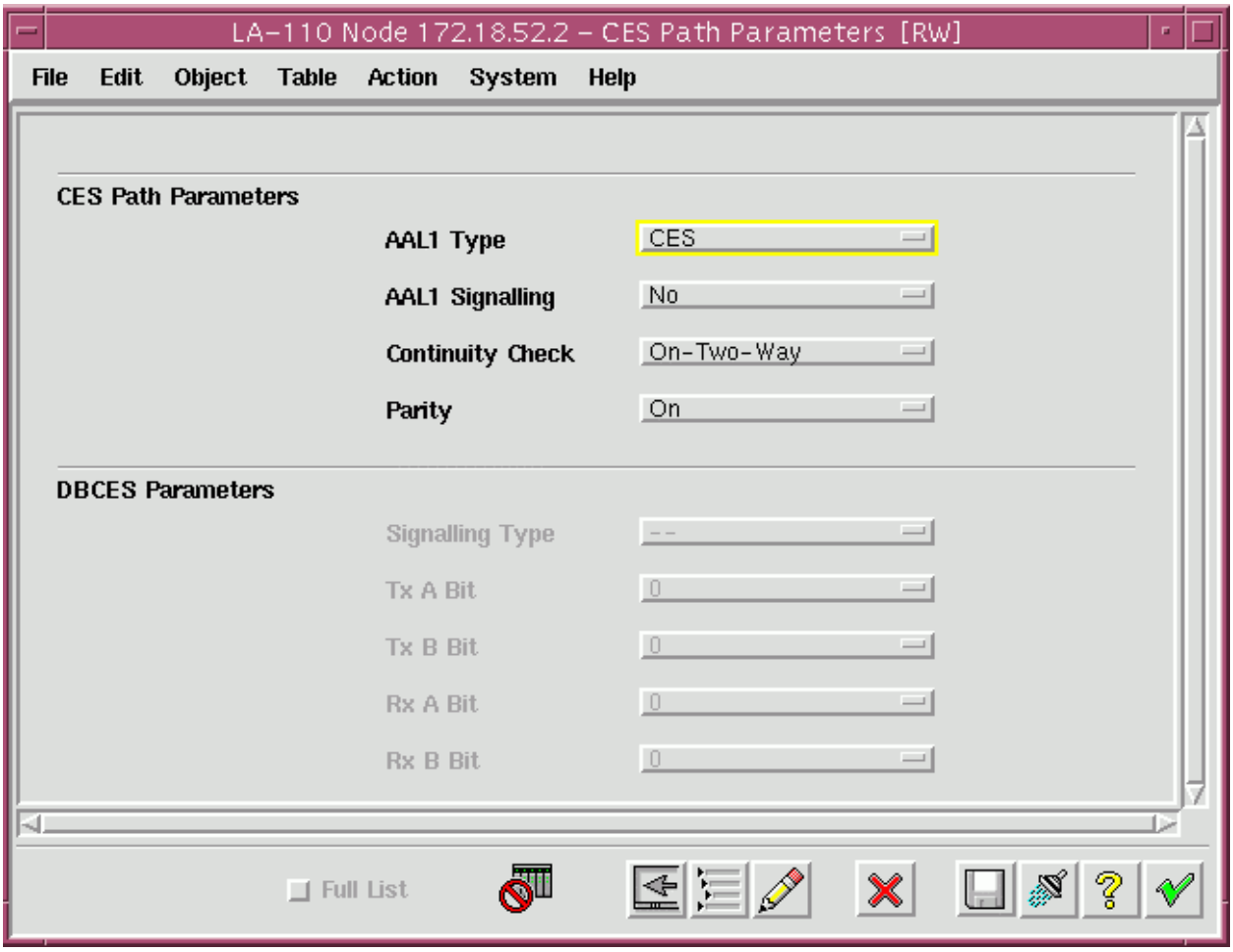


Figure 6-15. CES Path Dialog Box

2. Fill in the fields, as described in *Table 6-1*.
3. Click <**Save**> to save the changes.

Table 6-1. CES Path Parameters

Parameters	Possible Values / Remarks
CES Path Parameters	
AAL1 Type	Defines the type of connection that will be created • **CES:** (default value) The circuit emulation service (CES) enables the transmission of constant bit rate (CBR) data over the ATM network, in accordance with the ATM Forum Circuit Emulation Service Interoperability Specification. CES uses AAL1. LA-110 supports both the structured and unstructured service modes. • **DBCES:** DB-CES enables better utilization of available uplink bandwidth by using the voice channel activity information carried by the signaling bits of the port to request uplink bandwidth when the channel is active (off-hook), and release the bandwidth when the channel is idle (on-hook). The cell structure depends on the framing mode selected by the user (E1, T1 using SF framing or T1 using ESF framing). • **Transparent:** This mode uses the unstructured CES mode defined in ATMF specification AF-VTOA-0078.000. In this mode, LA-110 handles the port payload as a single 64 kbps bit stream which is transparently transported over the ATM connection, without any assumptions regarding the framing.
AAL1 Signaling	The CES Cas. **Yes, No**
Continuity Check	The VCC admin status. **Off Two Way** (down)**, On Two Way** (up)**, On-source, On-sink** • Read-only
Parity	Controls the use of pointer parity when using the **Structured** or **Structured with Pointer** connection type • **Off -** Pointer parity generation and checking disabled. • **On** (defalult value) - Pointer parity bit generation at the transmit side, and checking of parity bit for error detection at the receiving side enabled. The field is disabled if the AAL1 type is transparent..
DBCES Parameters	
The following field is disabled if the AAL1 type is not DBCES.	
Signaling Type	The ATM CES signaling type **E&M/PLAR, FXO-Loop Start, FXS-Loop Start, FXO-Ground Start, FXS-Ground Start, R2, Other**
The following fields are enabled only if Signaling Type is Other.	
Tx A Bit	The ATM CES signaling AB bits **0, 1, X**
Tx B Bit	The ATM CES signaling AB bits **0, 1, X**

Table 6-1. CES Path Parameters (Cont.)

Parameters	Possible Values / Remarks
Rx A Bit	The ATM CES signaling AB bits **0, 1, X**
Rx B Bit	The ATM CES signaling AB bits **0, 1, X**

6.4 CES to CES Paths

The first step in CES path creation is verifying that both CES endpoints have an identical physical layer setting. .

Note *Unframed E1s cannot be created in the 5620 Path Creation form.*

Note *The time slot (TS) numbering in the standard 5620 shelf view is displayed below the TS row. (Note that this may be confusing because there also sequential numbering above the TS row). When the Line Type is with no multi-framing (no CAS), note that TS 31 is positioned after TS 15 and TS 16 is positioned right after it.*

Note *The CES path can be created with a minimum of three timeslots*

➤ **To configure a path between two E1 CES ports:**

1. Right-click on the Entire Network Map and select **Create > ATM and TDM > Paths > ATM > VCC**.

   The new ATM VCC path form opens, in which you can specify the path endpoints.

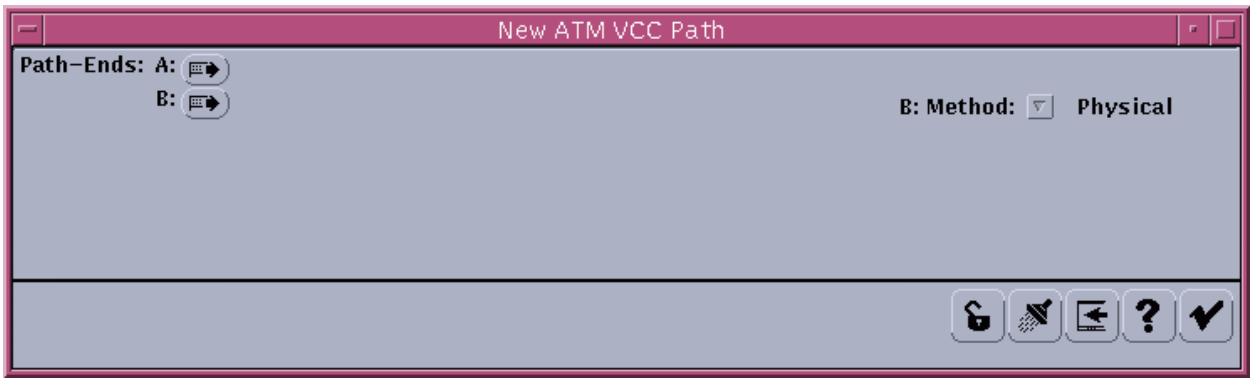


Figure 6-16. New ATM VCC Path Dialog box

2. On the Entire Network Map, double-click an **LA-110** icon to open the LA-110 Node shelf view (*Figure 6-2*).
3. Double-click the **CES port** to focus on it – to open its zoom view.

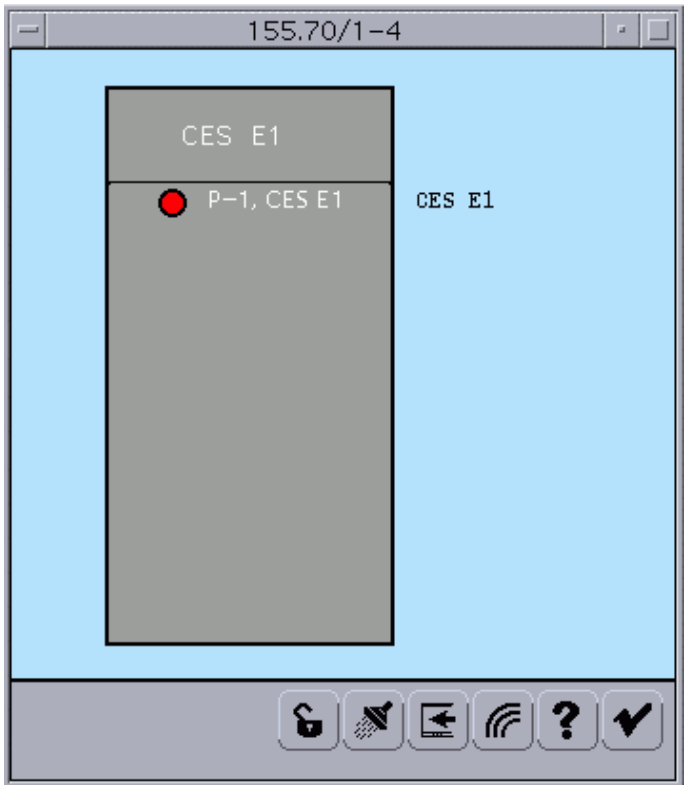


Figure 6-17. Zoom View of CES

4. Click on the **CES port** to highlight it.
5. In the CES Port Level Zoom (*Figure 6-17*), double-click on the port.
   The Port Timeslot dialog box appears (*Figure 6-18*).

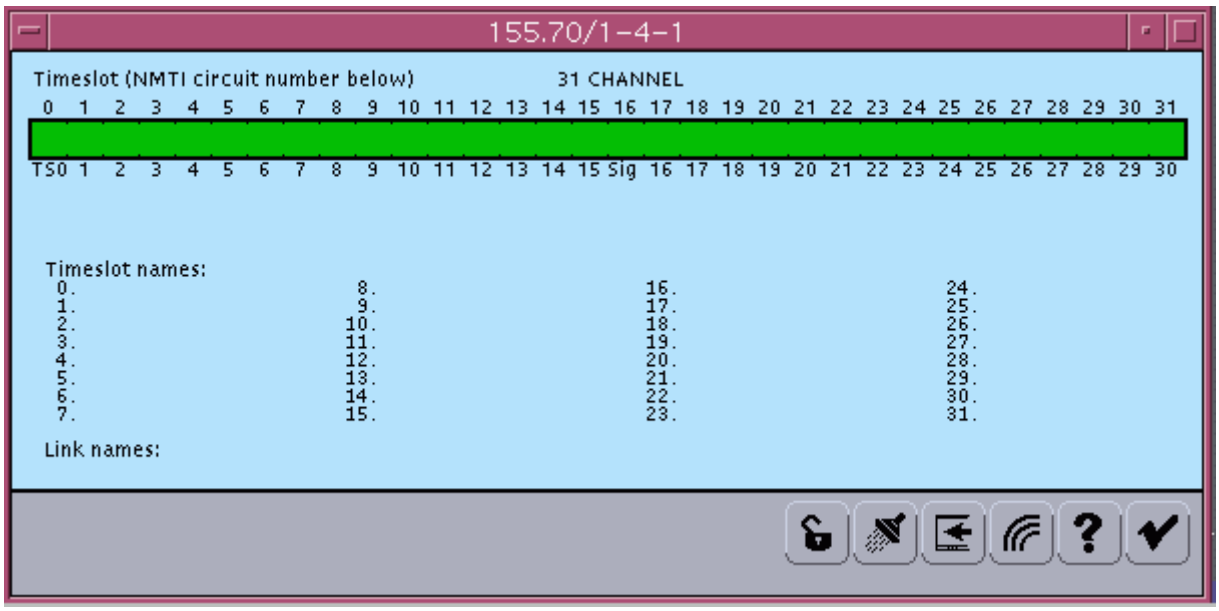


Figure 6-18. Port Timeslot Dialog Box

6. Select the starting timeslot of the bundle.
7. In the New ATM VCC Path dialog box, click the <**Path-Ends: A:>** button.

   The port is inserted and a form opens, displaying the CES port information (*Figure 6-19*).

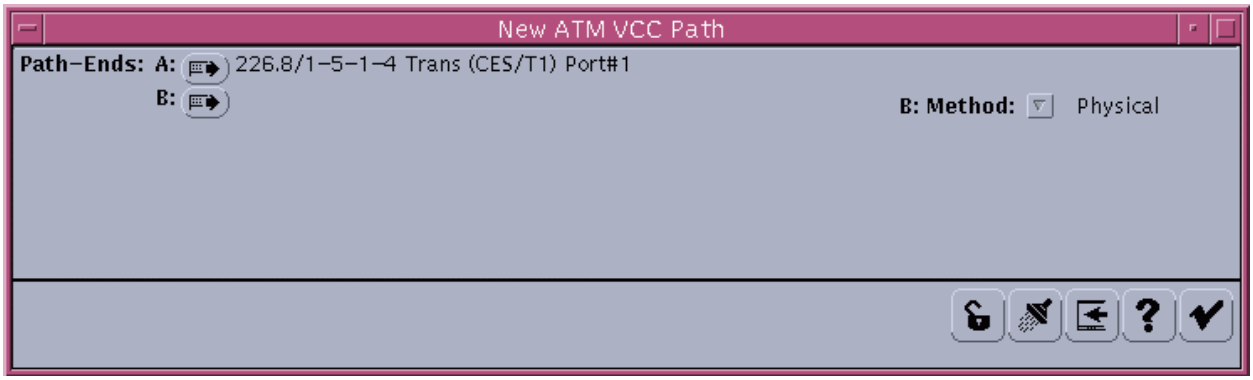


Figure 6-19. New ATM VCC Path Dialog Box (With CES Port Information)@add new graphic 15-5

8. On the Entire Network Map, double-click a second **LA-110** node and repeat steps 5 and 6.
9. In the New ATM VCC Path dialog box, click the <**Path-Ends: B:>** button.

   The port is inserted, the port information appears briefly, and the New ATM VCC Path full CES dialog box appears (*Figure 6-20*).

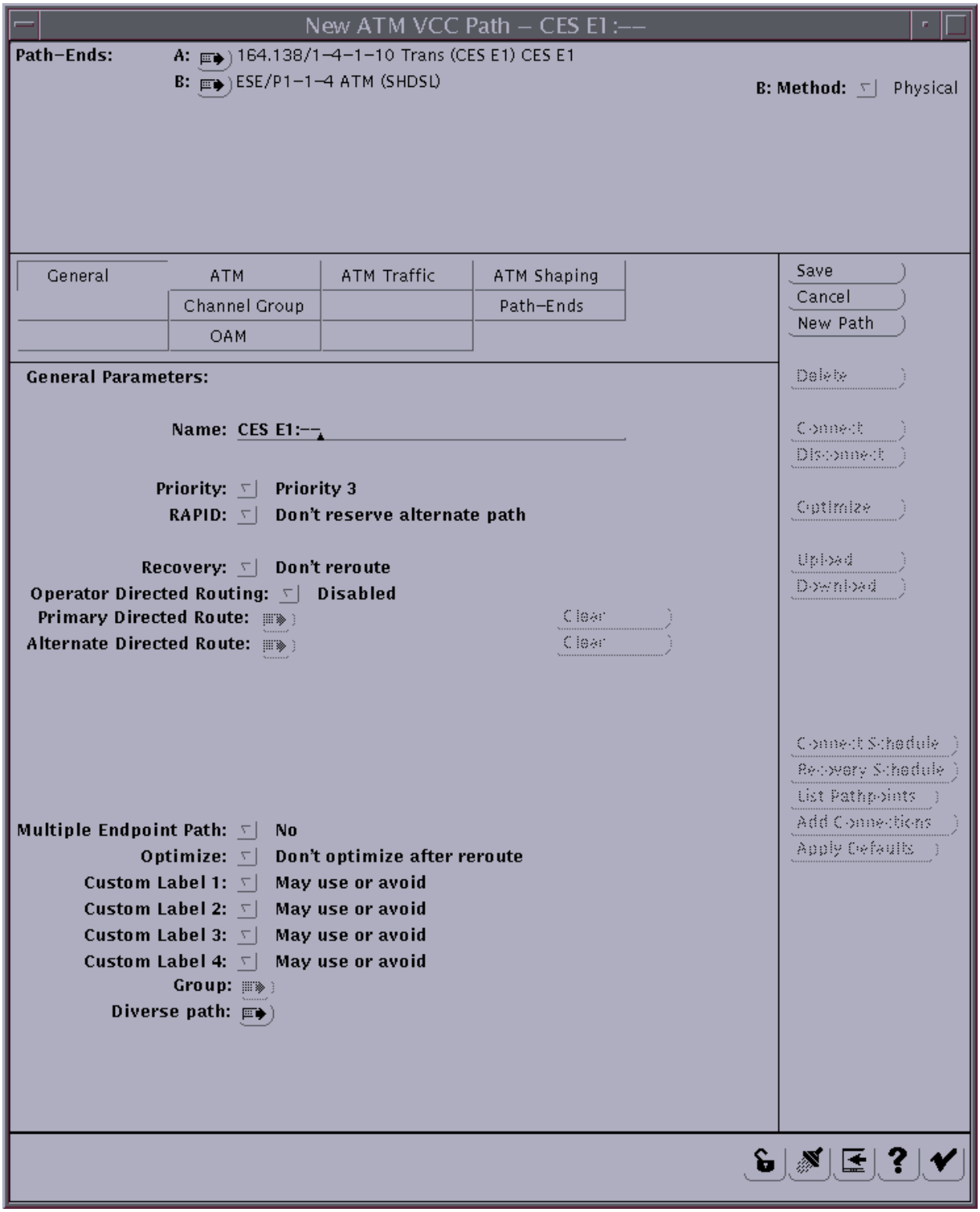


Figure 6-20. New ATM VCC Path Full CES Dialog box

10. Enter the relevant information for the appropriate attributes.
11. Click the <**Channel Group**> button.

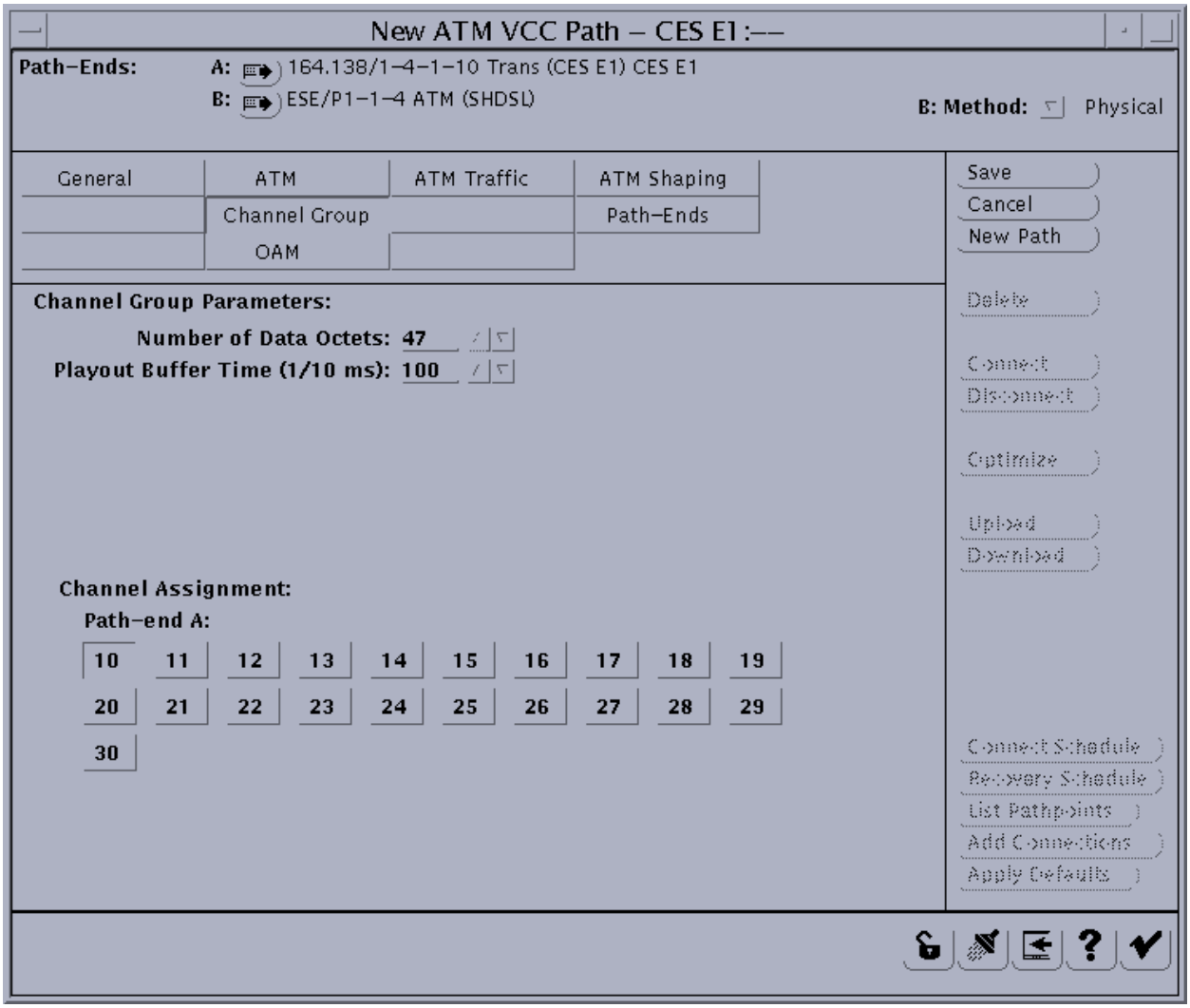


Figure 6-21. Channel Group Parameters Dialog Box

12. In the Channel Assignment Path-end A, select the total timeslots and the assignment of the timeslots.
13. In the Channel Assignment Path-end B, select the total timeslots and the assignment of the timeslots.

Note *The number of timeslots selected must be identical in both Path-end A and Path-end B.*

14. Click <**Save**> to save the changes.

    The parameters are saved in the 5620 database.

15. Click <**Connect**> to set the connection and to download the configuration to Agent.

    If successful, a path is created.

Notes

- *The lower the value of 'Number of Data Octets' is, the higher is the consumed BW.*
- *If the Nodes are managed by another NMS, then before starting the path creation process it is recommended to Perform 'Rediscover' or 'Reconcile' in order to make sure that the TS status in your NMS is correct.*

6.5 Viewing Link Information

LA-110 MD allows you to view information for the links that appear on the Entire Network map..

➤ **To view link information:**

1. On Entire Network Map, select the link, right-click and choose **Object > Info**.

   OR

   Click **Open > Object.**

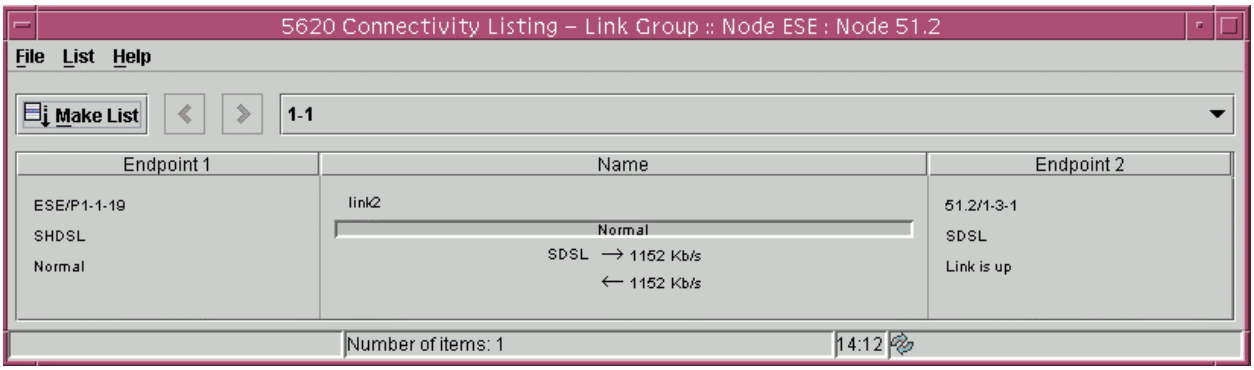


Figure 6-22. Link Group

Viewing List of Links and Paths

The 5620 NM allows you to view a list of paths and links you have created.

1. To view a list of paths (or links) you have created, in Entire Network map, select the NE, right-click and select either:
   List > ATM and TDM > Paths (or **List > ATM and TDM > Links**).

   The relevant List Paths (or List Links) form opens.

2. Click the <**Make List**> button to display the list of paths (or links) created, as shown in the following sample figure.

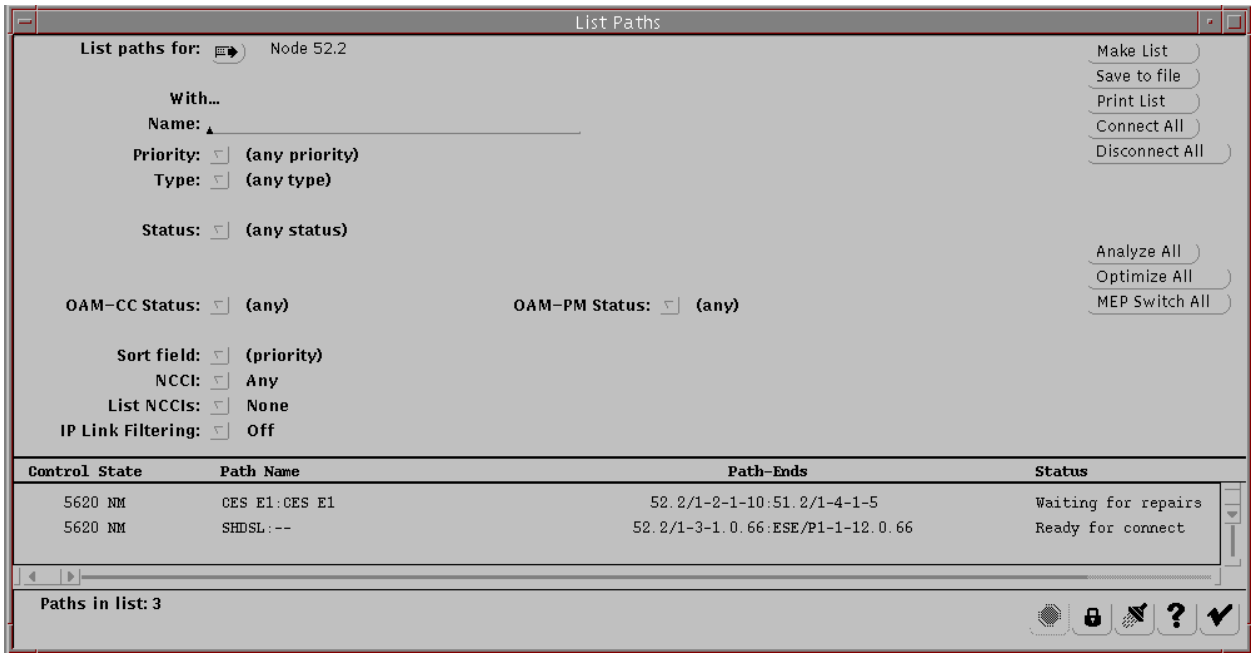


Figure 6-23. List Paths Form Showing CES Path

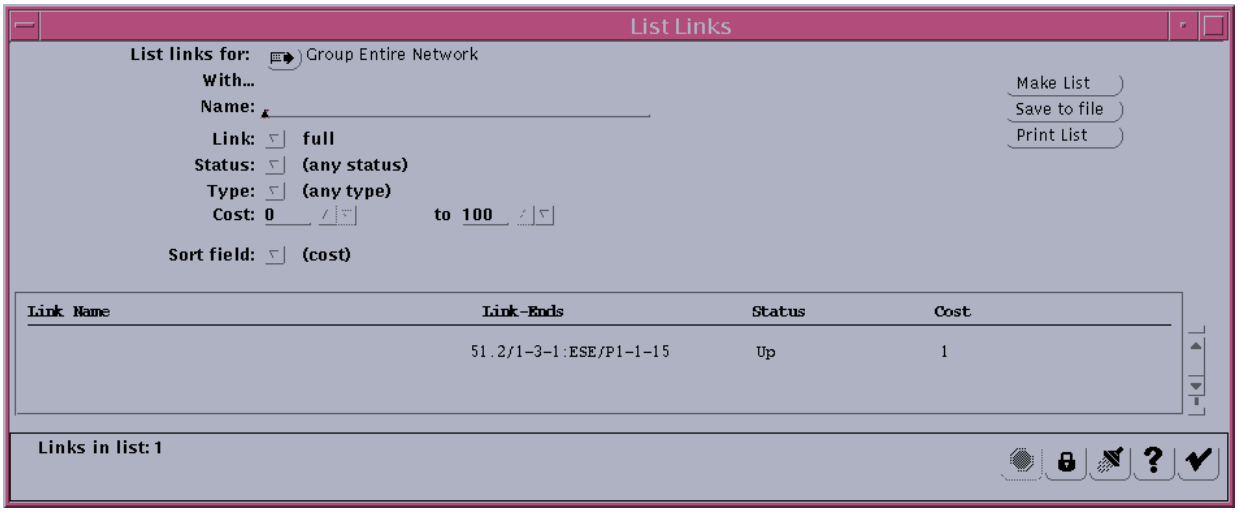


Figure 6-24. List Links Form Showing ESE Path

6.6 Deleting Paths and Links

In order to make subsequent connections on any NEs or DSLAMs, verify that there are no existing links or paths are on the required LA-110 endpoints. You can view the List Links form to see a list of assigned links to verify if any links need to be deleted.

In order to delete links, you have to first delete the paths that are on the links and then the links and you need to do this from both sides (endpoints) of the desired connection (from both NEs).

➤ **To delete paths:**

1. In the List Paths form (as shown in *Figure 6-23*), click the **<Disconnect All>** button to disconnect all the paths listed. (Alternatively, you can disconnect the paths one by one.)

   A confirmation message appears.

2. Click **<OK>** to confirm.

3. In the Paths List (see *Figure 6-23*), double click the path you want to delete.

   The Configure ATM VC Path form (see *Figure 6-13*) for the selected path opens.

4. In the Configure ATM VCC Path form, click the **<Delete>** button.

   The New ATM VCC Path form opens (see *Figure 6-7*), showing an empty form and a confirmation message that the path request is deleted.

5. To delete links, do any one of the following:

   - In List Links form, click the **<Make List>** button and from the Links List, select the relevant link row, and double-click to open the Configure Full Link form.

     OR

   - In the Entire Network map, double-click the link to open the Link Group form where you can click in the middle area to open the Configure Full Link form.

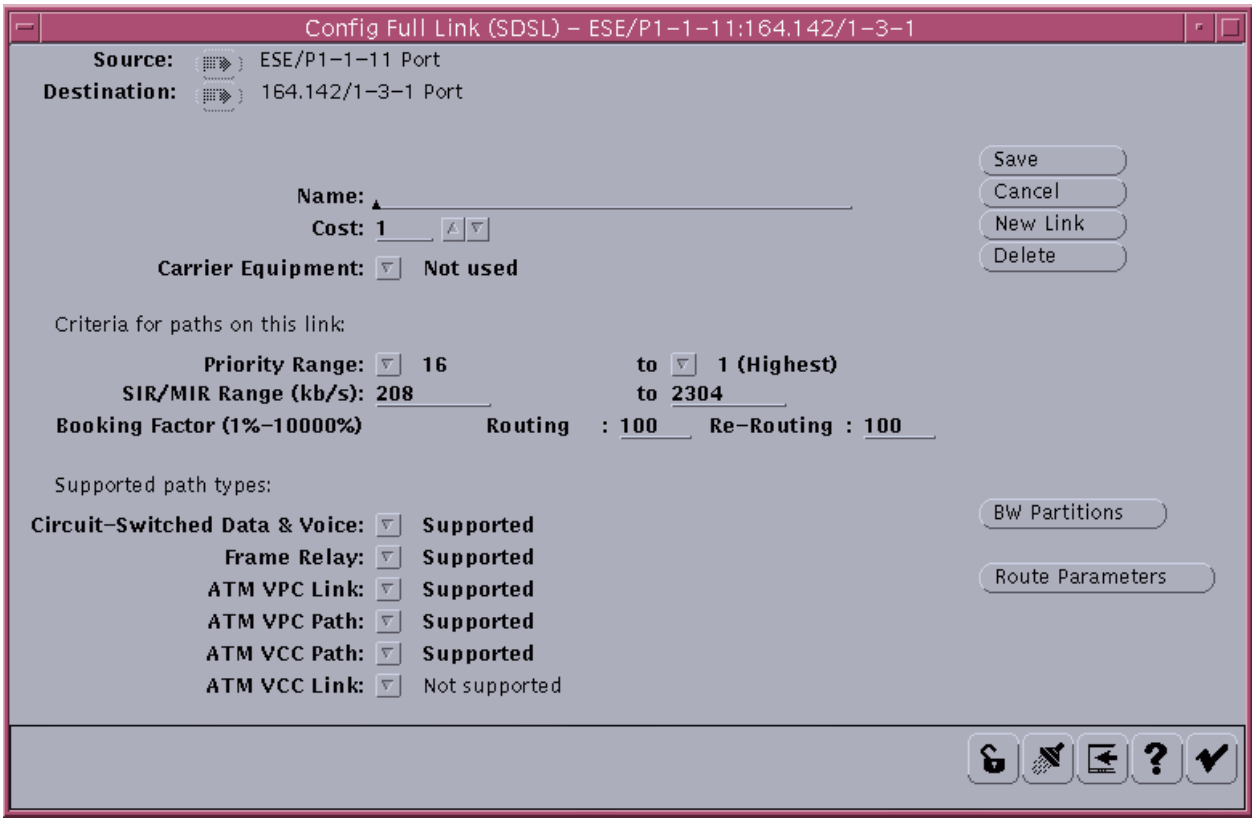


Figure 6-25. Link Group

6. Click <**Delete**>.

   A confirmation message appears.

7. Click <**OK**> to confirm the deletion.

   The selected link is deleted.

6.7 Configuring Data FR and AAL1 Stream Paths

Configuring Data FR and Data AAL1 Stream paths is a two-stage process:

1. Configure a non-cross-connected path between SHDSL ports.
2. Configure a Data FR or AAL1 Stream 5620 DM connection in the LA-110 node.

Note *The same settings for the ATM VPI and VCI values designated in stage 1 are to be used in stage 2.*

Configuring Data FR Paths

Stage 1: Setting up the Data Path with Two Non-Cross-Connected Path Endpoints

➤ **To configure the Data FR path:**

1. In the Entire Network Map, select the same LA-110 node used in the previous (link configuration) procedure, right-click and select **Create > ATM and TDM > Paths > ATM > VCC**.

   The New ATM VCC Path form opens (see *Figure 6-7*) where you can proceed to designate the Source and Destination points.

2. Double-click the node to open its Shelf View.
3. Select the SHDSL slot to open the SHDSL Port zoom view.
4. Click the SHDSL Port to highlight it.
5. In the New ATM VCC Path form, click the **<Source>** button to designate the path source endpoint.
6. In the Entire Network map, double-click on the second SHDSL module to open its Shelf view. (It can be another LA-110 or SHDSL port in DSLAM).
7. Double-click the SHDSL module to open the ESE's SHDSL Port zoom.

8. Click the SHDSL port and click the **<Destination>** button to designate it as a path endpoint

   The New ATM VCC Path form displays the designated path endpoints.

9. In the New ATM VCC Path form, click path ends to display the full form showing the ATM path parameters.

10. Click the **ATM** button to view the ATM endpoint parameters (VPI, VCI values).

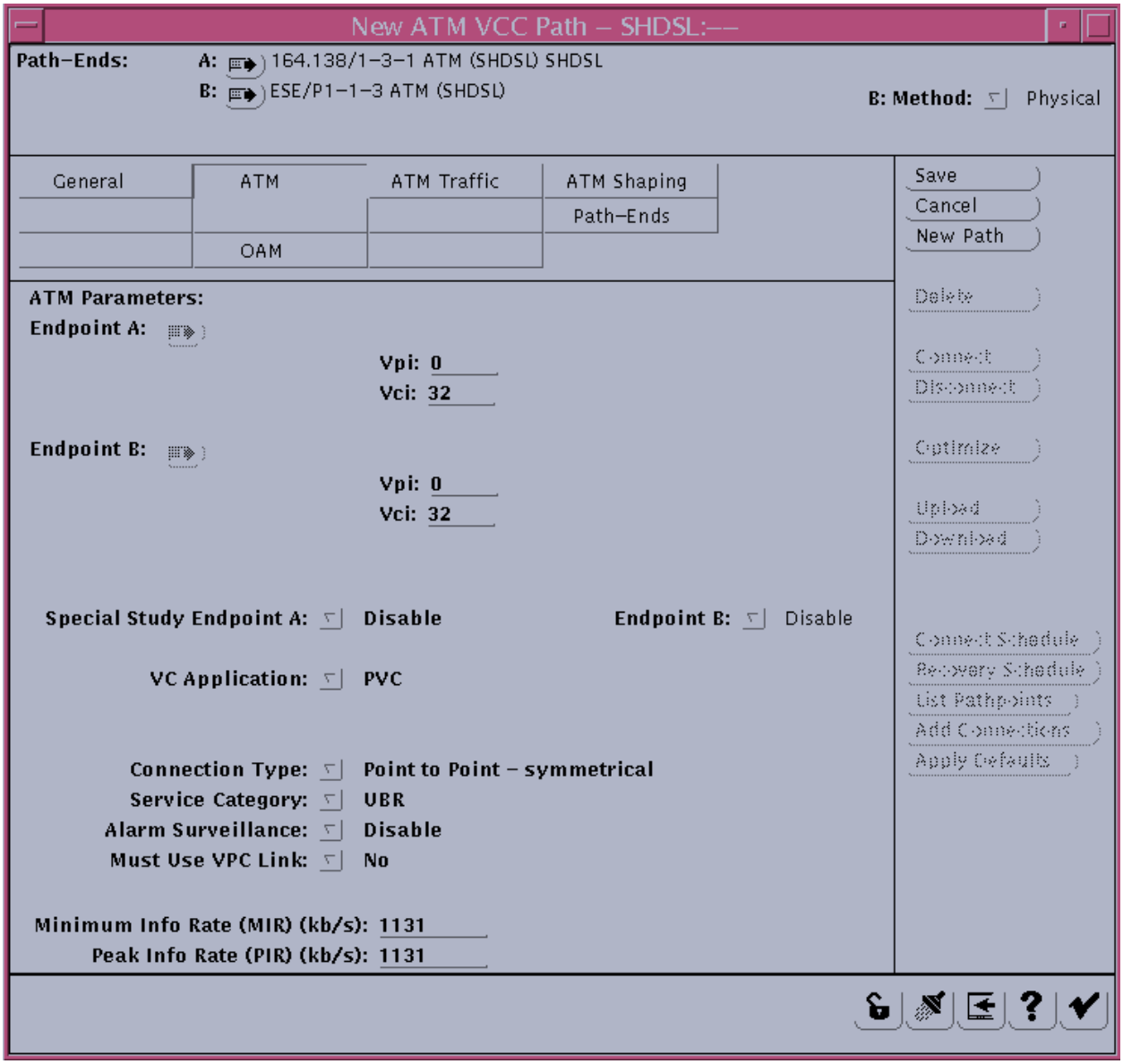


Figure 6-26. ATM Path Parameters - VPI and VCI Values

11. Click the <**Path-Ends>** button.

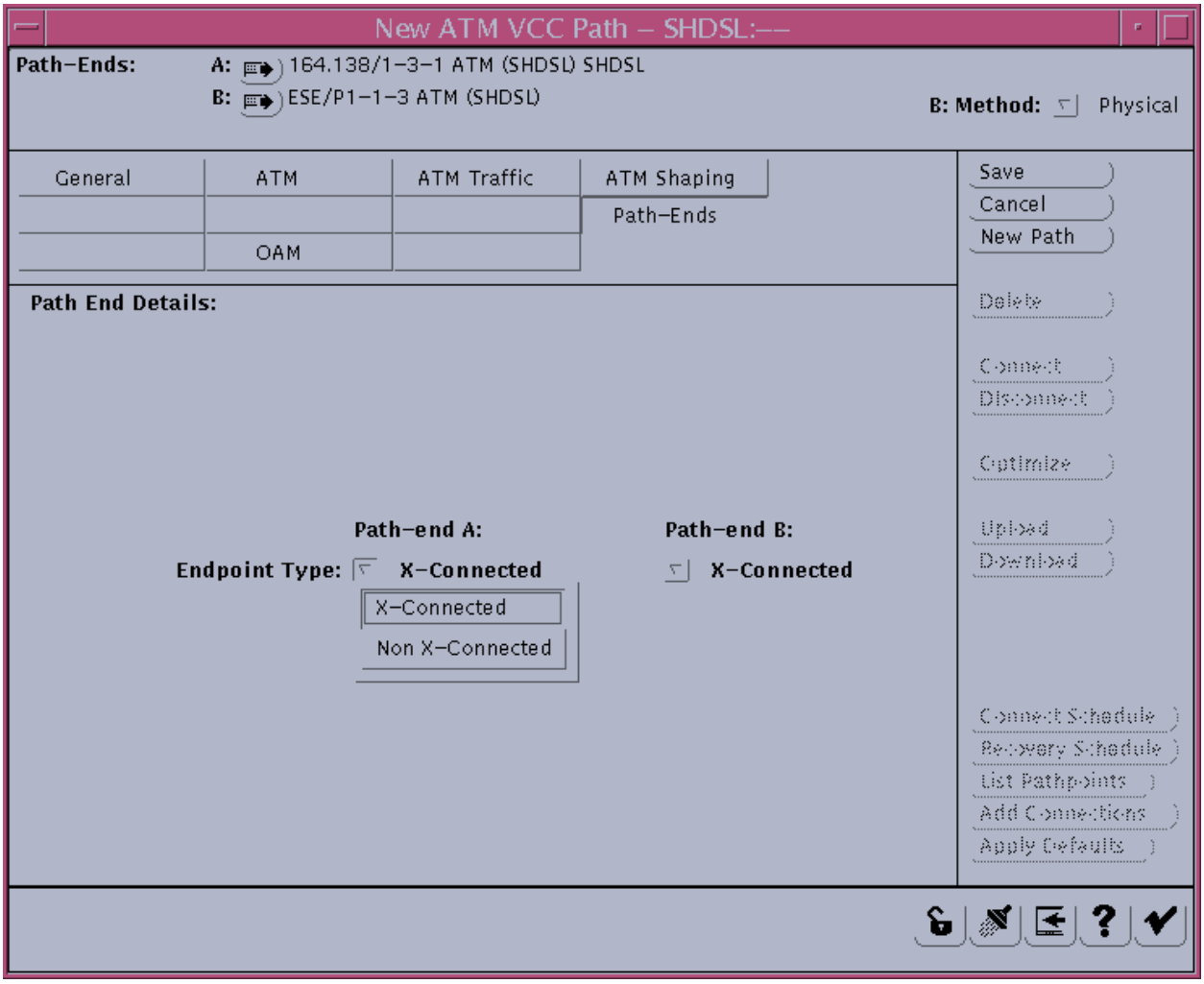


Figure 6-27. ATM VCC Path-End XC Options

12. From the Path-end A - Endpoint Type dropdown list, choose **<Non X-Connected>**.
13. Click **<Save>** to save the changes.
14. Click **<Connect>** to activate the path connection.

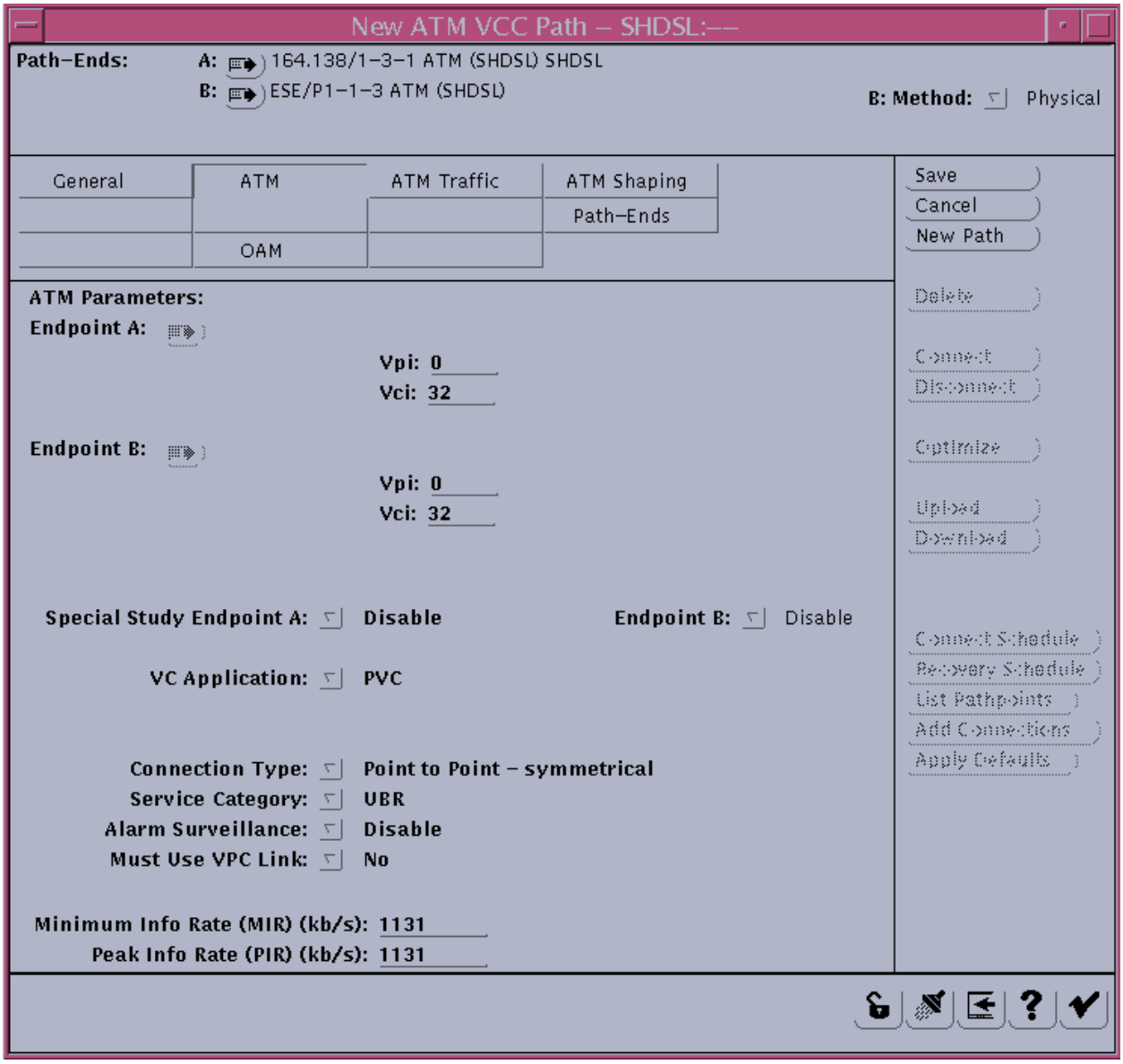


Figure 6-28. Connected ATM VCC Path of ESE and LA-110 SHDSL Port

The first stage of the Data path connection is complete.

Now proceed to create the Data FR or AAL1 Stream connection. (For further information, refer to the relevant sections in the Cross-Connection chapter.)

Appendix A

LA-110 MD LED Indicators

This appendix provides lists and color/status descriptions of the LA-110 MD LED indicators, including:

- Front Panel LEDs
- Port status indicators.

A.1 LA-110 MD Front Panel LEDS

Note *LEDs are ordered in the following table according to their position on the LA-110 device panel. When these LEDs are OFF, they appear grayed.*

For LA-110, there are three LEDs, on its front panel, as described in the following table.

Table A-1. LA-110 Front Panel LEDs

LED	Description	State	Color
PWR	Indicates power supply state	PS On - always	Green
		PS Off	Red
		PS is absent	Gray
WAN	Indicates WAN state	Synchronized	Green
		Not synchronized	Red
LAN	Indicates LAN state	Data transitions on the device.	Gray
		The NMS LED is always off	

A.2 LA-110 MD Module and Port Status

Operational status for each physical module and port is indicated by the frame color of the module (as shown in the 5620 Shelf View) and port itself (as shown in the LA-110 Draw), based both on polling and notifications of interfaces operational status.

When the frame color of the port is:

- Red: it indicates that the operational status is down. (There are failures on the port.)
- Green (Gray in 5620): it indicates that the operational status is up (ready to pass packets). The port is OK and no tests are running on it.
- Purple: it indicates that the operational status is unknown, and/or a loopback test.

Index

—A—

AAL1
- selection, 3-15

AAL1 Stream
- application mode, 4-13
- interface statistics, 4-58

AAL1 Stream paths
- configuring, 6-23

alarms
- clearing history log, 3-24
- history, 3-22
- indication, 2-9
- viewing, 3-21

architecture
- 5620 network management, 1-2

ATm to FR IWF settings, 3-16

—C—

CES E1 port
- bundles configuration, 4-52
- bundles table, 4-54
- configuration, 4-48
- interface information, 4-51
- loopback testing, 4-55
- monitoring, 4-81
- parmeters, 4-49

CES path parameters
- viewing and modifying, 6-12

configuration
- CES E1 port, 4-48
- LAN port, 4-19
- port, 4-1, 4-4
- resetting, 3-25
- restoring default, 3-25
- SHDSL port, 4-35

Configuration tool, 2-12

cross connection, 5-1
- AAL1 Stream VC, 5-7, 5-26
- adding, 5-1
- CES VC, 5-3, 5-15
- configuring, 5-9
- deleting, 5-32
- FR VC, 5-6, 5-22
- LAN VC, 5-1, 5-9
- performance monitoring, 5-30

—D—

Data FR
- configuring, 6-23

Data FR port
- application mode, 4-6

Data port
- application, 4-5
- monitoring, 4-57

descriptor
- settings, 3-19

Descriptor Module
- 5620 SNMP, 1-1

Drawing Tool, 2-10

—F—

FR interface
- statistics, 4-57

—G—

graphical user interface
- using, 2-8

—H—

hardware
- requirements, 2-1
- resetting device, 3-25

history log
- clearing, 3-24

host interface
- parameters, 3-6

—I—

installation
- 5620 SNMP DM, 2-1

—L—

LA-110
- overview, 1-2

LA-110 node
- creating, 2-4
- deleting, 2-7

LA-110 ports
displaying, 2-7
LAN interface
statistics, 4-60
LAN port
configuration, 4-19
monitoring, 4-59
LEDs
front panel, A-1
LA-110 MD, A-1
links
configuring and monitoring, 6-1
deleting, 6-21
information, 6-20
SHDSL, 6-1
viewing, 6-20

—M—

Manager List, 3-11
module
status color indicators, A-2
Monitor tool, 2-12
monitoring
performance, 4-56

—N—

Navigator tool, 2-11

—P—

path management, 6-1
paths
ATM VCC, 6-6, 6-15
CES, 6-12
configuring and monitoring, 6-1
deleting, 6-21
Ethernet, 6-6
LAN to LAN, 6-6
viewing, 6-20
performance
monitoring, 4-56
port
CES E1, 4-48, 4-81
configuration, 4-1, 4-4
Data AAL1 Stream, 4-57
Data FR, 4-6, 4-57
Data FR application, 4-5
LAN, 4-19, 4-59
operations, 4-3
parameters, 4-3
selecting, 4-1
SHDSL, 4-35, 4-62
SHDSL AAL1 statistics, 4-74
SHDSL AAL5 statistics, 4-77
SHDSL ATM layer statistics, 4-68
SHDSL ATM layer VCL statistics, 4-72
SHDSL physical layer statistics, 4-62
status color indicators, A-2

—R—

Rediscover tool, 2-12

—S—

SHDSL port
AAL1 statistics, 4-74
AAL5 statistics, 4-77
ATM layer statistics, 4-68
ATM layer VCL statistics, 4-72
configuration, 4-35
monitoring, 4-62
physical layer statistics, 4-62
SNMP 5620 Descriptor Module, 1-1
SNMP community, 3-18
statistics
AAL1 Stream interface, 4-58
FR interface, 4-57
LAN interface, 4-60
status bar, 2-12
system
faults, 3-21
information, 3-3
log buffer, alarms history, 3-22
parameters, 3-5
preferences, 3-20
resetting configuration, 3-25
resetting hardware, 3-25
resetting statistics, 3-26
restoring default configuration, 3-25
selecting, 3-1
viewing and modifying configuration, 3-3
viewing online help, 3-26

—T—

tool
Configuration, 2-12
Monitor, 2-12
Navigator, 2-11
Rediscover, 2-12
Traffic Descriptor settings, 3-8

RAD data communications
24 Raoul Wallenberg St., Tel Aviv 69719, Israel
Tel: +972-3-6458181, Fax: +972-3-6483331, +972-3-6498250
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